

Chemical Week

August 17, 1957

Price 35 cents



Future of \$160-million/year industry hangs in balance as Congress again probes food additives . p. 21

◀ **Florida invokes law in citrus-pest fight, offers subsidies to state's pesticide users p. 29**

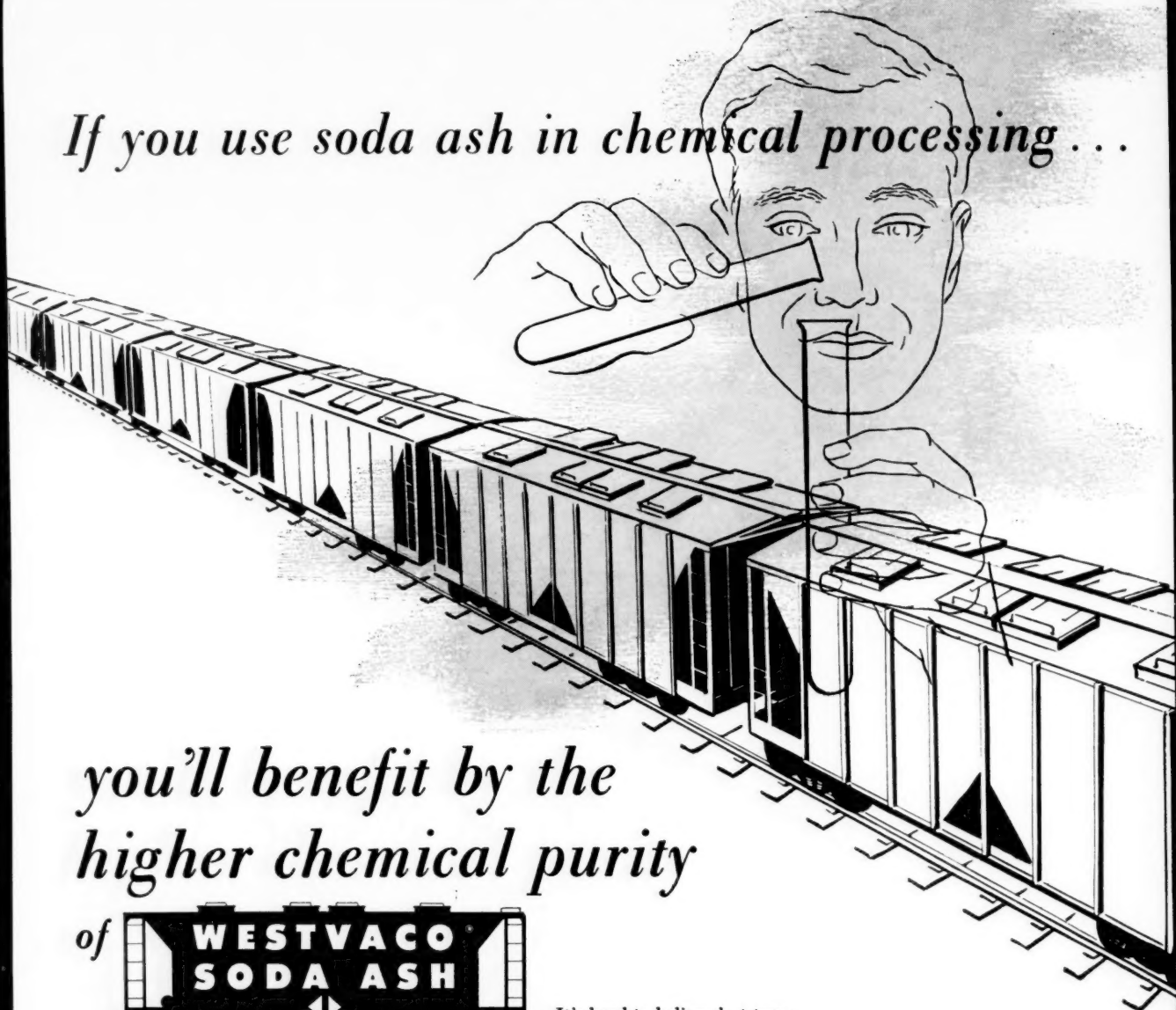
CPI strikes rise, countering the all-industry trend. Trouble spots: Southern, border states . . . p. 47

What's par for salesmen's expenses? Survey tells how many companies pay how much . p. 69

◀ **Booby trap in your morning mail? Avoid these costly pitfalls in handling unsolicited ideas . p. 107**

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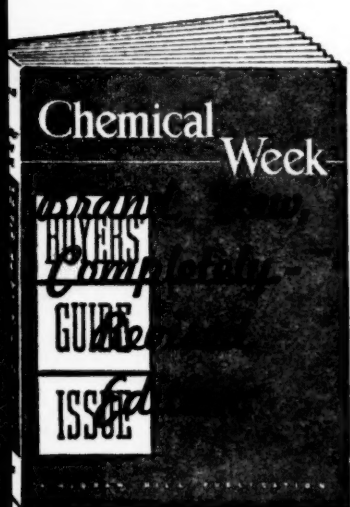
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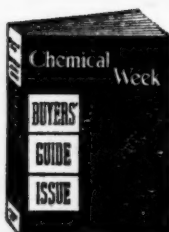
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Chemical Week, Aug. 17, 1957

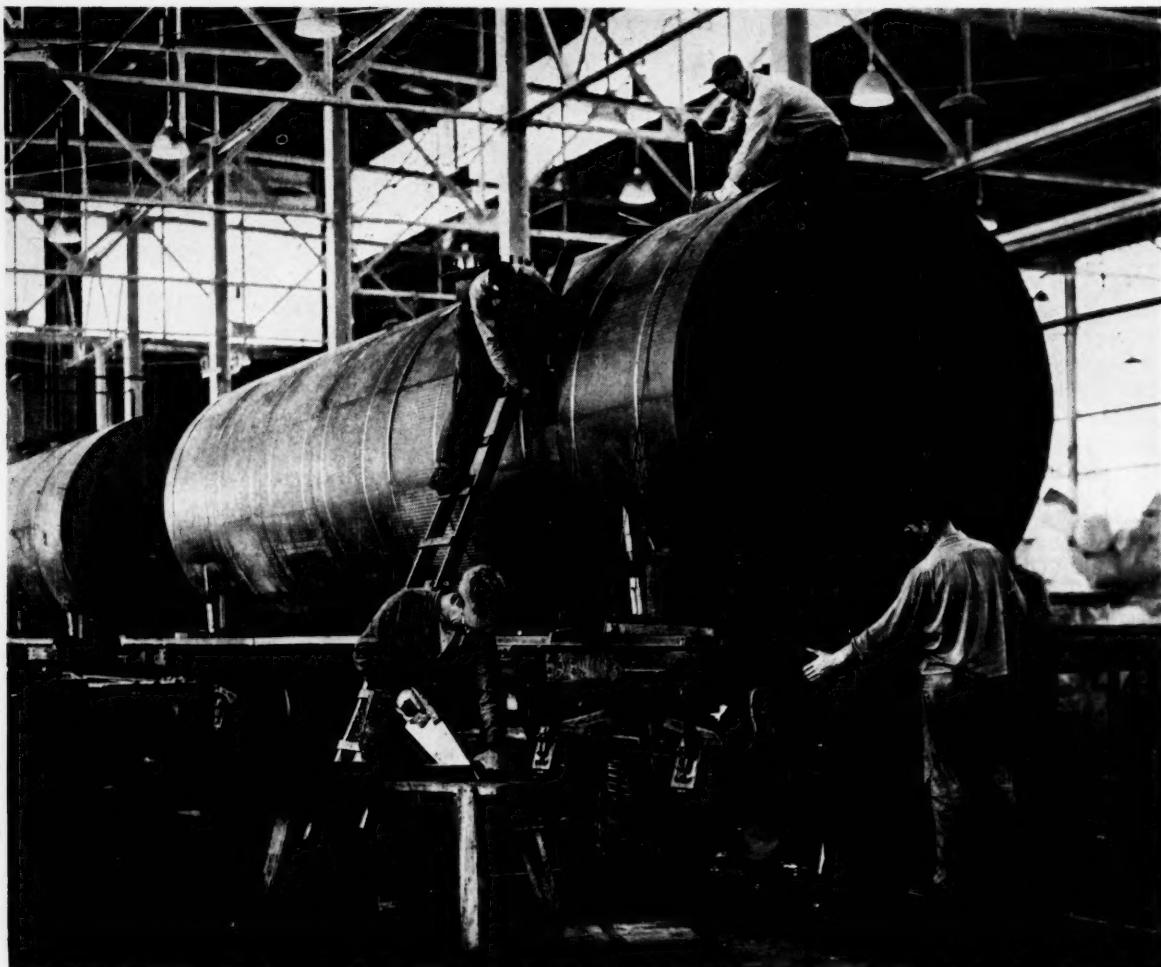


Photo courtesy Union Tank Car Company, Chicago, Illinois. Insulation hardboard supplied by Rubatex Division, Great American Industries, Inc., Bedford, Virginia

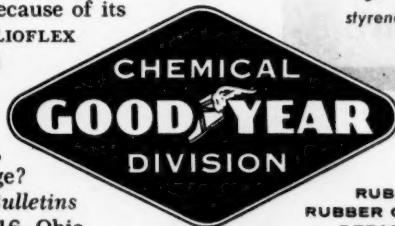
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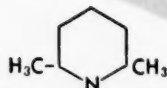
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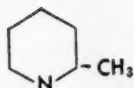


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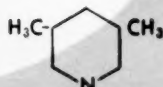


2, 6-LUTIDINE



2-PICOLINE

Reilly Pyridines

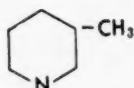


3, 5-LUTIDINE

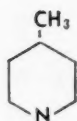
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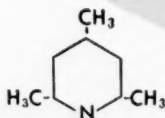
Send for your copy of the 1957 Reilly Chemical Index—it lists these and many other Reilly chemicals.



3-PICOLINE



4-PICOLINE



2, 4, 6, -COLLIDINE

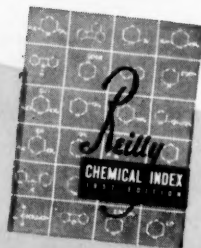


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Chemical Week

TOP OF THE WEEK

August 17, 1957

- ▶ **Michigan Chemical's petrochemical plans get setback**, as Swan-Finch's receivership delays transfer of chemical unit **p. 24**
- ▶ **New ethylene-based compound** bids fair to steal some thunder from acetylene-based vinylpyrrolidone **p. 57**
- ▶ **Lessened maintenance cost, quicker processing time** are features of new den for continuous superphosphate process ... **p. 80**
- ▶ **Should safety engineers promote slogans, contests?** No, says Westinghouse's safety director **p. 87**
- ▶ **Interested in the building plastics market?** Here's how companies have fared in changing building codes, making architects plastics-conscious **p. 95**

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10 MEETINGS

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- 21 Congressional hearings on food additives will affect future growth of this \$160-million/year field.
- 23 Neil McElroy steps out of Procter & Gamble presidency to become U.S. Secretary of Defense.
- 23 Two new roadblocks must be passed before the government can sell its General Aniline stock.
- 24 Michigan Chemical's acquisition of Swan-Finch petrochemical interests stymied as S-F goes into receivership.
- 24 Merger-minded American Cyanamid sets its sites on Illinois Powder.
- 24 All's not calm among tranquilizer makers; Congress is concerned about safety of the antitension pills.

29 SPECIALTIES

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47 ADMINISTRATION

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- 50 Chemical companies join in sponsoring summer science camp for high school students.

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- 58 Radiation offers one solution for control of nematodes.

69 SALES

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77 TECHNOLOGY NEWSLETTER

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87 PRODUCTION

How much engineering belongs in the plant safety engineer's job? Westinghouse's Duffus gives his firm's answer.

95 MARKETS

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Companies can pay heavily for careless handling of unsolicited ideas. Here's how to protect your firm from damage suits.

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U.S. still leads in worldwide lead production.

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No. 7

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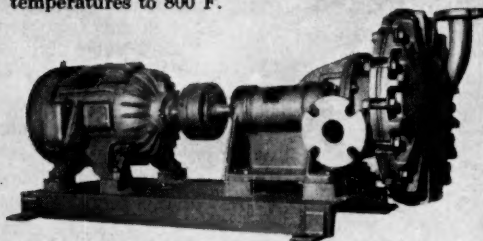
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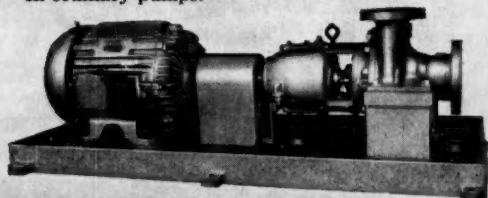
ALLIS-CHALMERS LIQUID HANDLING

PROCESS PUMPS

Capacities up to 10,000 gpm, heads to 600 feet, temperatures to 800 F.

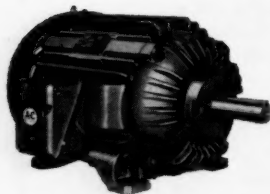


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High Temperature Refinery-Type Pump. Designed to handle liquids at temperatures to 800 F and pressures to 600 feet. NPSH requirements are low to facilitate pumping volatile liquids at temperatures near their flash points.

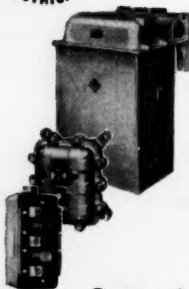
POWER PACKAGE ... for Liquid Handling



Motors



Texrope Drive



Control

ALLIS-

Pumping Unit

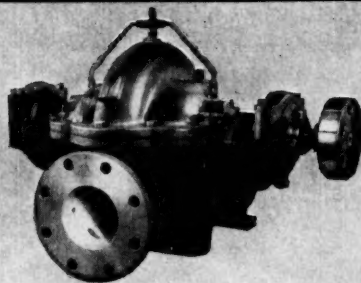
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All these high quality components are "coördineered" to give you long, dependable low-cost operation.

Allis-Chalmers, as a *single source* for complete liquid handling units, assumes *undivided responsibility* for their continued efficient performance.

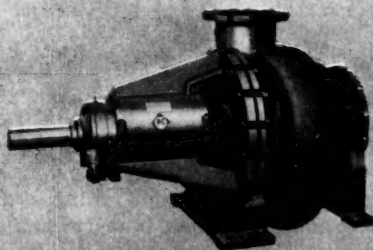
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AIR & GAS HANDLING	6	Centrifugal Blowers Axial Compressors Rotary and Barrel- type Compressors

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Texrope is an Allis-Chalmers trademark.

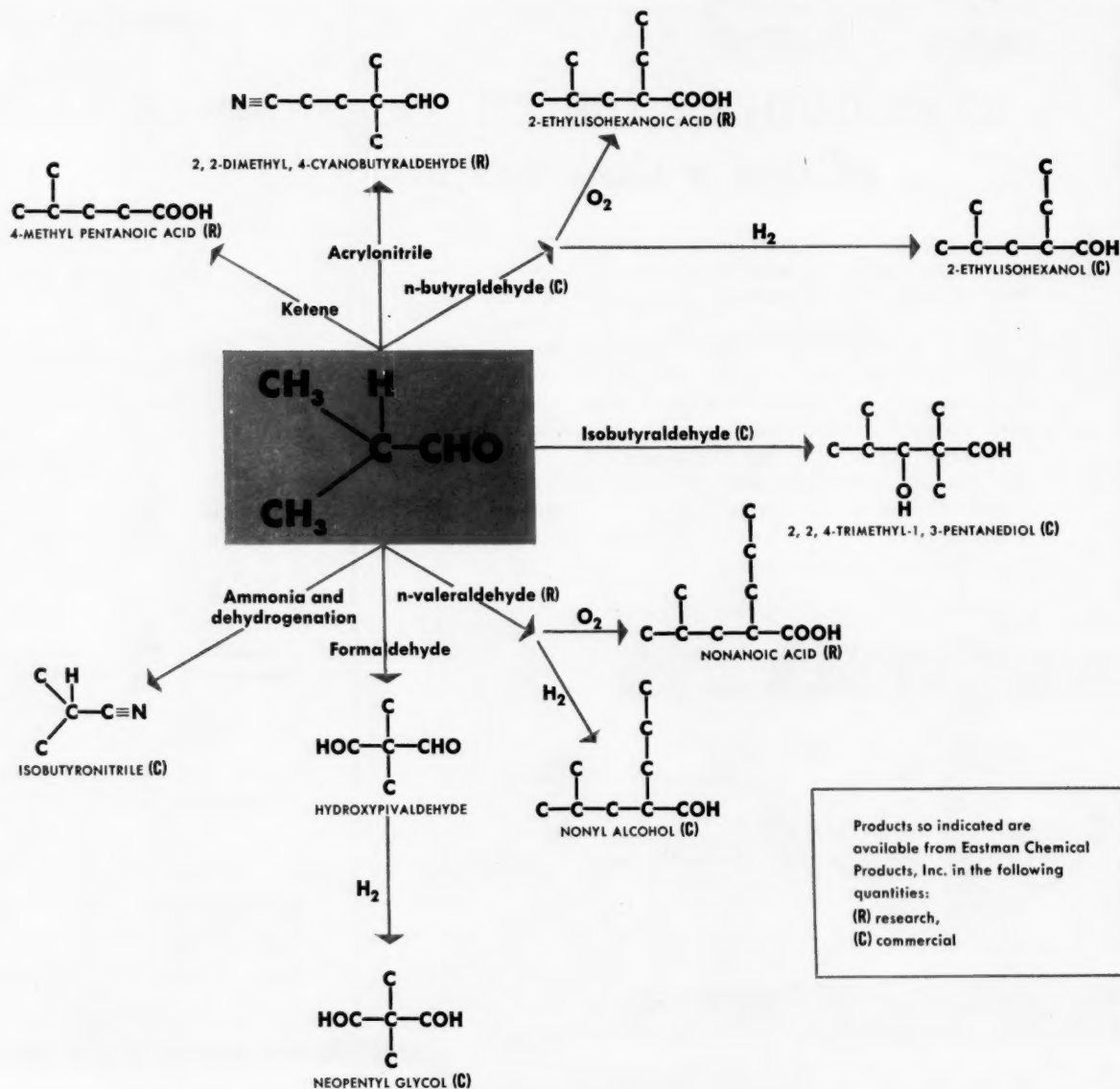


A-5356

CHALMERS

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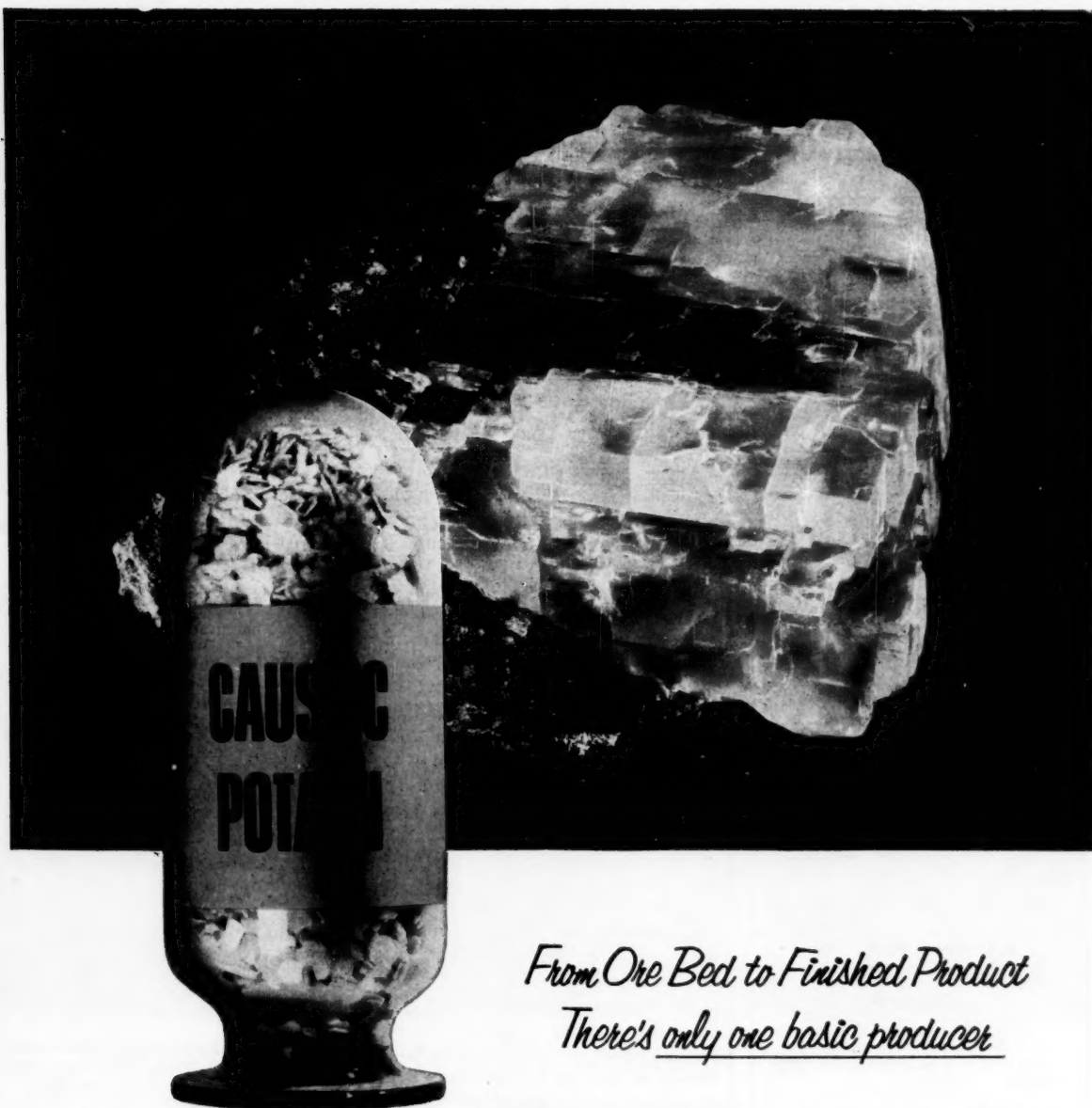
Each Merchants' office is a single, reliable source for a wide assortment of chemicals. Because stocks at Merchants' warehouses are maintained with one consideration in mind — customer service — orders for assorted chemicals are filled rapidly and completely. For 35 years Merchants Chemical has given industrial chemical users this type of specialized service. Products include acids, alkalis, fungicides, surfactants, chlorinated solvents, emulsifiers, laundry compounds, soaps, dry ice and chemical specialties.



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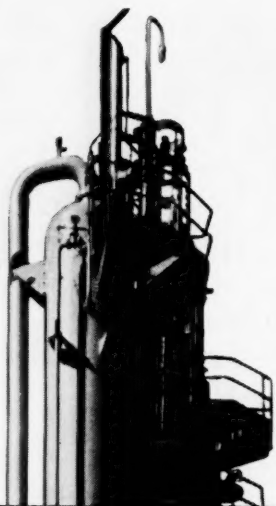
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August 17, 1957 • Chemical Week

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Accelerator

... ideal when critical conditions of compounding and processing call for exceptional protection.

For the finest in delayed-action accelerators, specify Cyanamid.

*Trademark

CYANAMID
AMERICAN CYANAMID COMPANY
RUBBER CHEMICALS DEPARTMENT
Bound Brook, New Jersey

OPINION

Butyl Processing

TO THE EDITOR: I can verify some of the comments in your excellent "Butyl Tire Problems" article (*July 27, p. 84*), having had the opportunity to ride in a car with butyl tires. The smooth ride and lack of corner squeal is certainly outstanding. You did a very outstanding job in presenting the advantages and the problems.

I am compelled, however, to raise a few issues. It is implied in your text that Elastopar (N-methyl-N,4-dinitrosoaniline) is an Esso product. Elastopar is a registered trademark owned by Monsanto Chemical Co. and Monsanto is the sole producer of this butyl modifier-promoter. It is also implied that Amberol ST-137X is an Esso product rather than one of Rohm & Haas.

In your reference to the conditions used for modification, you neglect to make the significant point that Elastopar allows the temperature of heat treatment to be reduced from 400-440 F down to 300 F. Also, with Elastopar, the time of treatment can be as little as 1-3 minutes rather than 20 minutes, as indicated. These two factors (temperature and time) are very important in their commercial implications, due to the temperature limitations of plant equipment and the economics (for the rubber industry) of long milling.

Finally, while in some respects zinc oxide is considered a pigment, its use in the rubber industry is essentially limited to that of an activator. Pigments used and for which modification is beneficial are for the most part carbon blacks, clays and silicas.

While the above may be, in some

CW welcomes expression of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to:
H. C. E. Johnson, Chemical
Week, 330 W. 42nd St., New
York 36, N.Y.

views, rather moot points, certainly in the rubber industry they are quite significant.

Again, congratulations on a very well-done and well-written article.

D. J. MASSEY
Rubber Chemicals Section
Development Dept.
Organic Chemicals Division
Monsanto Chemical Co.
Nitro, W. Va.

We are glad to share Reader Massey's specialized information with CW's readers. No implication was intended, of course, that the well-known Elastopar and Amberol tradenames are Esso's.—ED.

MEETINGS

Boulder Laboratories of the National Bureau of Standards, cryogenic engineering conference, Boulder, Colo., Aug. 19-21.

Northwestern University conference on liquid scintillation counting, Technological Institute, Evanston, Ill., Aug. 20-22.

American Soybean Assn. and National Soybean Processors Assn., annual meeting, Leamington Hotel, Minneapolis, Aug. 26-28.

Fisk University, 8th annual infrared spectroscopy institute, Nashville, Aug. 26-30.

Instrument Society of America, international symposium on gas chromatography, Kellogg Center for Continuing Education, East Lansing, Mich., Aug. 28-30.

National Agricultural Chemicals Assn., annual meeting, The Essex and Sussex, Spring Lake, N.J., Sept. 4-6.

Instrument Society of America, 12th annual instrument automation conference and exhibit, Auditorium, Cleveland, Sept. 9-13.

Technical Assn. of the Pulp and Paper Industry, testing conference, Hotel Shoreham, Washington, Sept. 11-13.

Chemical Market Research Assn., annual resort meeting; theme: impact of St. Lawrence Seaway on chemical industry; Lake Placid Club, Lake Placid, N.Y., Sept. 15-17.

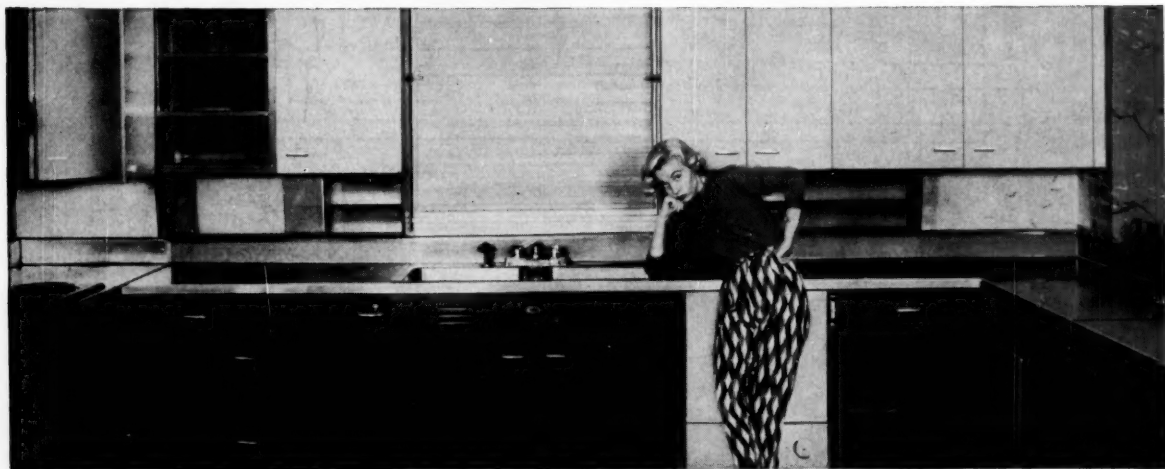
International Union of Leather Chemists Societies, 5th conference, Rome, Italy, Sept. 15-20.

National Bureau of Standards, free-radicals symposium, Washington, Sept. 18-20.

American Oil Chemists' Society, fall meeting, Netherlands Hilton Hotel, Cincinnati, Sept. 30-Oct. 2.



"Three cheers for Coal Chemicals . . .



. . . life would be tough without 'em!'"

YOU can't *really* blame young Mrs. Housewife for looking unhappy! To make a point, we've removed everything from her kitchen that could have been made from Pittsburgh coal chemicals. And that includes her plastic products, vitamins, synthetic fibers and paints.

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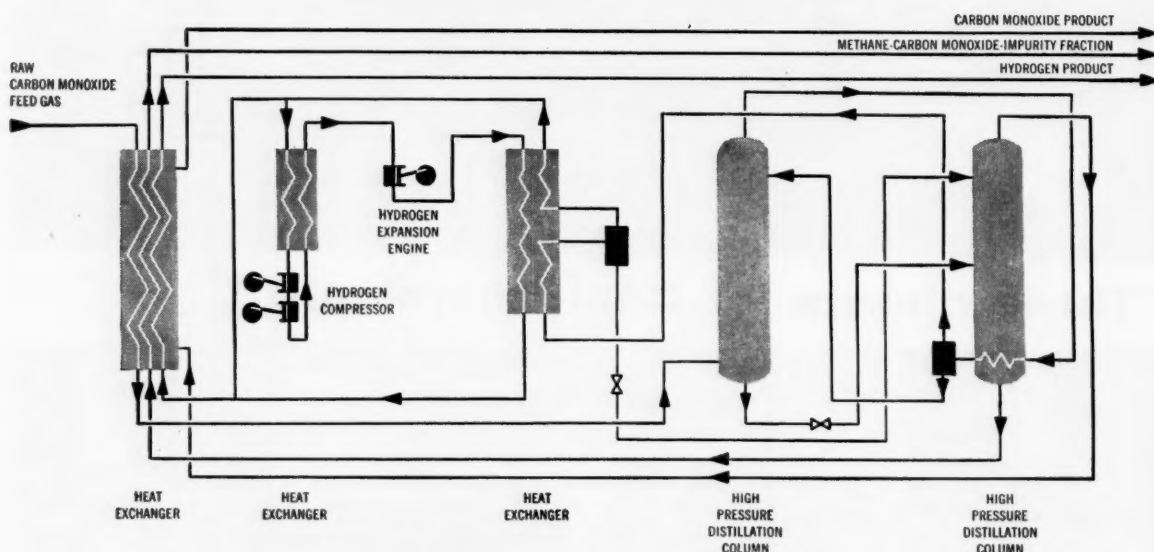
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August 17, 1957 • Chemical Week

11

A new approach to production and purification of carbon monoxide from crude synthesis gas



In the production and final purification of carbon monoxide from crude synthesis gas, low-temperature processing plays an important part. Synthesis gas—produced by steam reforming or various partial oxidations—contains CO, H₂ and some carbon dioxide. From this composition, it is possible to recover up to 95% of the CO, as a product of up to 99.5% purity, using low-temperature equipment designed and built by Air Products, Incorporated.

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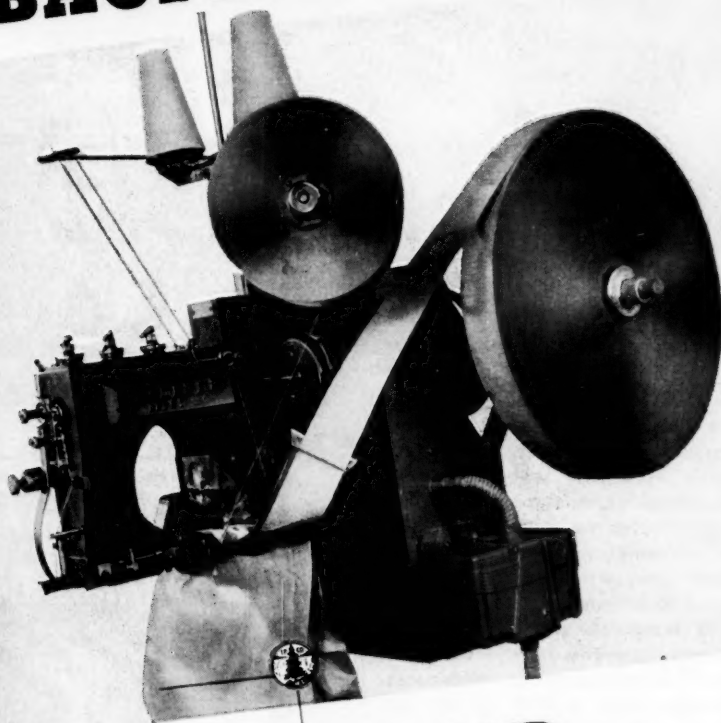
Low-temperature processing is not limited to just this type of gas purification. Designs are available and plants have already been built for such processes as . . . recovery of helium and nitrogen, separately, from natural gas . . . purification of methane . . . recovery of pure hydrogen from cracked petroleum off-gas streams. New processes are constantly being developed, and can be tailored to your needs.

Integrated design, manufacture, erection and operation of Air Products plants makes possible guaranteed results . . . for gas separation, liquefaction and purification systems. Plants are built to customer specifications. Ask us how low-temperature processing can be put to work for you. Your inquiry is invited. Air Products, Incorporated, P.O. Box 538, Allentown, Pa.

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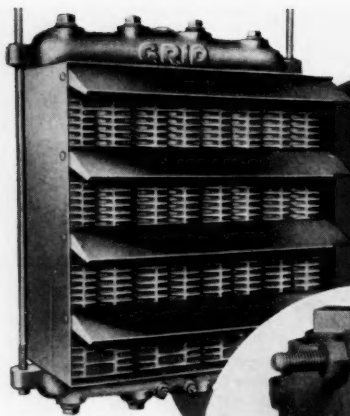
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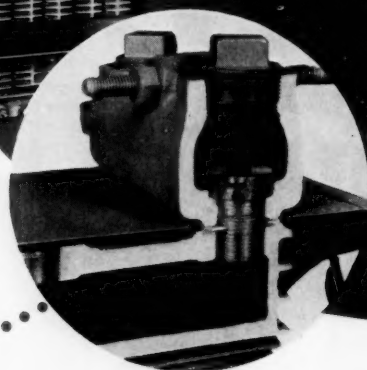
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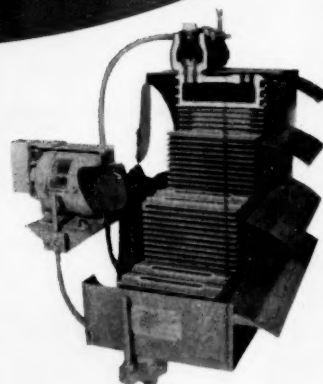
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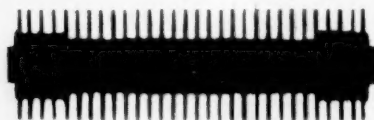


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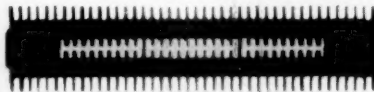
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Cut-away view of Model 2000 GRID Unit Heater . . . note double steam chambers in each fin section and wide fin spacing . . . fins are cast integral with steam chamber.



All cast iron one-piece, single chamber fin section used in Model 1000 and Model 1200 GRID Unit Heaters . . . note wide fin spacing and ample radiation surface.



All cast iron, one piece, double chamber fin sections are used in Model 1500 through models 3000 GRID Unit Heaters, all GRID Blast Heaters and all GRID Radiators. Wide fin spacing prevents clogging by lint or dust . . . finned surface is easily cleaned . . . straight through air passage reduces resistance. Steam inlet at top serves both steam chambers permitting quick, even steam distribution. Outlet section at bottom serves both steam chambers permitting quick condensate discharge. Inlet and outlet openings are 1" P. T.

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Quality
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soda ash

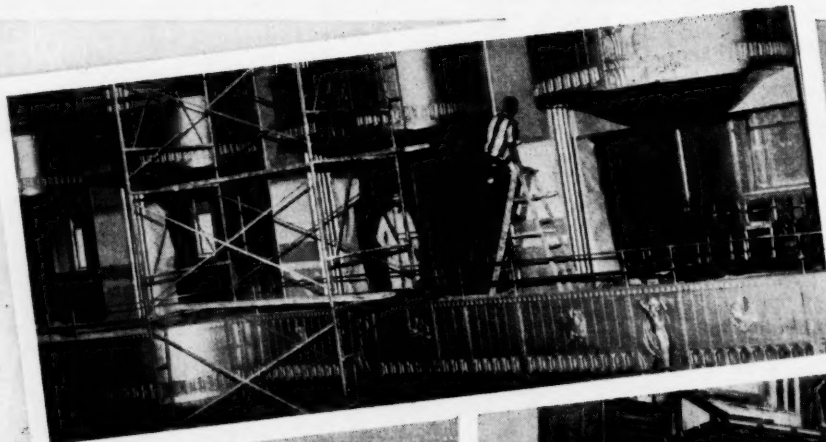
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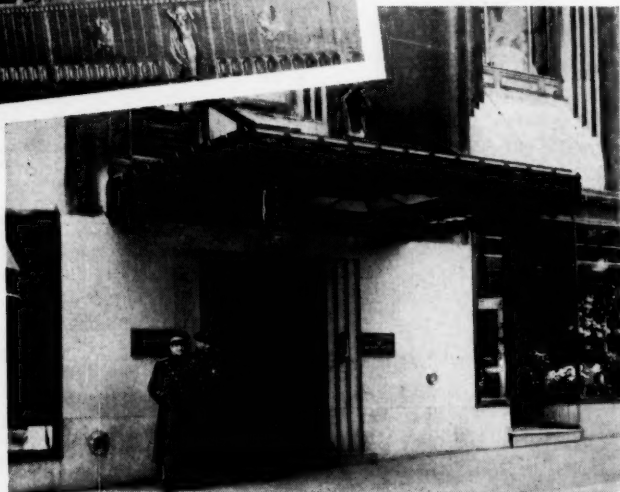
EPON[®] RESIN does it !



An Epon resin-based bronze coating replaces expensive gold leaf in Waldorf ballroom.

The Waldorf-Astoria,

New York City, saves money with new interior-exterior coating . . . for masonry, limestone, plaster, metal and wood



Light area shows Tower entrance coated with Epon resin-based formulation. Dark area above, uncoated, shows ravages of atmosphere.

Here's how...

Painting costs less at the famous Waldorf now, thanks to a new Epon resin-based coating called Porselon[®]. It lasts longer and gives much greater surface protection than ordinary coatings.

Epon resin-based Porselon proved its outstanding worth in 1954 when it was tried experimentally on an exterior limestone surface over the hotel's Tower entrance. Despite three years of exposure to New York's destructive atmosphere of fly ash, soot and grime—the test coating has not been affected in any noticeable way.

The success of this severe test has led to consideration of a giant exterior resurfacing program, which would include Porselon-coating the exterior of the Waldorf, 20 stories high.

Interior applications of Porselon include the famous Waldorf Grand Ballroom (walls, gilt decorations, metal railings, wood), lobbies (masonry), and the Coffee House (plaster). In all cases, the Epon resin-based Porselon proved to have excellent adhesion and high resistance to abrasion and corrosives.

Porselon was used, too, on exterior

cooling towers, condensers and exposed piping of the hotel's air-conditioning system. Coatings used previously deteriorated so rapidly that the metal surfaces corroded between paintings. With Porselon, the corrosion was successfully controlled.

Paint users everywhere now recognize the advantages of Epon resin-based formulations. Your Shell Chemical salesman will explain how Epon resins can improve your own formulations. Write for the brochures, "Epon Resins for Surface Coatings" and "Epon Resin Esters for Surface Coatings."

*Porselon is manufactured by Protex-a-Cote, Inc. of Newark, New Jersey.

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Business Newsletter

CHEMICAL WEEK

August 17, 1957

Look for broader use of sodium gluconate in alkaline washing compounds, now that a district court has ruled that Diversey Corp.'s (Chicago) patent on this use of the compound is invalid. Diversey had sued Chas. Pfizer for infringement of U. S. Pat. 2,615,846 by using the gluconate as the sequestering agent (preventing spotting and film formation) in bottle-washing compounds; the court found that the patent was invalid, misused and not infringed.

Misuse, Judge John Peter Barnes said in federal district court (Chicago), came when Diversey charged 30¢/lb. royalty on material that costs about 35¢/lb. Diversey has indicated that it will appeal the decision.

The Florida-Texas gas pipeline program was slowed last week by a group of Florida oil dealers, who seek to have the line's Federal Power Commission approval withdrawn. Until the circuit court of appeals in Washington, D. C., acts on their petition, construction of the line will be postponed.

The 119 oil dealers, calling themselves the Florida Economic Advisory Council, object to the Coastal Transmission and Houston Texas Gas & Oil plans for a number of reasons. Basically, they feel the approval was "rushed through." The council says it was prevented from filing additional briefs; that the commission unlawfully omitted the examiner's intermediate decision in the case; and that the line does not meet the test of public convenience because of improper rates and doubtful financing. Coastal Transmission's reply is due next month; the court will likely hold hearings in October.

Tax write-offs for liquid oxygen and nitrogen producers will be okayed this week. The Office of Defense Mobilization director, Gordon Gray, got an extension to Aug. 22 of a deadline of Aug. 5 for approving certificates. So there's no doubt now that ODM must meet that deadline or give up its plans for a 4-billion-cu.-ft./year expansion in capacity for these gases through the tax write-off route.

Projects totaling \$24 million are being approved. The program will be spread over some 15 separate projects—ranging from some with under 1-million-cu.-ft./year capacity that cost a few hundred thousand dollars to at least one large plant. Linde Air Products, a top producer of liquefied gases, is seeking a fast write-off for one oxygen/nitrogen plant that will cost an estimated \$10 million. The Linde application to ODM—covering a plant in the 2-to-3-billion-cu.-ft.-capacity range—thus represents nearly half the total expansion sought by the government.

BDSA's Chemical Division still must give ODM its list of recommended projects—some 15 out of about 20 applied for. ODM isn't bound by BDSA's preferences—so Linde may not get the full amortization.

Business

Newsletter

(Continued)

Gray disclosed the \$24 million figure in testimony before the Senate Finance Committee last week. The committee had okayed a bill last Monday imposing rigid limits on tax write-off certifications—and made its bill retroactive to Aug. 5. But a few days later, the committee set a new cutoff date of Aug. 22 after Gray explained that Congressional approval of the earlier date would automatically kill the oxygen/nitrogen program.

•
Stepan Chemical Co. purchased Ninol Labs. (both Chicago) last week for \$2 million. The firms make synthetic detergents; Ninol will broaden Stepan's product coverage by adding agricultural emulsifiers and industrial chemicals. The firms do combined sales of about \$16 million a year.

•
U. S. Capital (that of Olin Mathieson) and Argentine capital (that of Atanor, of Buenos Aires) were combined last week in a joint venture to make farm pesticides for the South American market. The 50-50 venture, known as Mathieson-Atanor Co., is said to be the first major example of a U. S. firm and an Argentine firm linking forces in this fashion. Mathieson-Atanor has initial capitalization of about \$1.8 million, but this may be increased to about \$25 million within two years.

Atanor, largest chemical company in Argentina and the only one entirely held by Argentine interests, produces agricultural chemicals. The new firm will sell products made by Atanor and imported by Olin Mathieson subsidiary, Mathieson Quimica.

•
Hooker's sales didn't dip as sharply as indicated in *CW's* report on second-quarter financial statements (*CW*, Aug. 10, p. 20). Instead of a 33.8% drop, the actual decline was 3.9%, on '57 second-quarter sales of \$27.9 million.

•
The slow growth of union membership in the chemical industry was made clear by the report of Elwood D. Swisher, vice-president of Oil, Chemical & Atomic Workers International Union. At the union's convention in Chicago this week, Swisher said that OCAW managed a net gain of only 1,405 workers last year. Almost as fast as workers in a new plant were organized, shutdowns and reduction in forces took members away. Over-all membership in OCAW is now about 200,000.

•
Fluoridated drinking water for sheep? Australian farm experts report that the fluoride-treated water is very helpful in improving the condition of the animals' teeth.

Other chemicals may also be added to the drinking water for sheep to counter the abrasive action of fine river silt. Why the concern? Sheep with sore teeth don't eat, can't produce good wool.

BRIEFS

for buyers of

Muriatic Acid

Sodium Benzoate

Caustic Soda

Is the wrong kind of muriatic giving your process indigestion?

Just look at some of the things that can happen when the muriatic acid you buy isn't quite as good as it should be for your process.

If you're making benzidine dyes, for example, you know that *sulfates* in muriatic acid can gum up your equipment with an insoluble white precipitate.

In refining certain high-grade metals, such as radium, sulfates can cause serious extraction losses. Sulfates are bad actors, too, in processing many food and vitamin products.

Iron, another impurity sometimes present in muriatic acid, can make a product that should be white come out yellow.

Arsenic, present in some acids, can cause trouble, too—including formation of toxic arsine gas during metal pickling.

Finally, *free chlorine* in muriatic can give your production men headaches by helping to oxidize valuable components in the batch.

What to do about it This brings us to the reasons why *your* process, if it's sensitive to any of the impurities mentioned above, will perk most efficiently when you feed it Hooker White muriatic.

Hooker White is just about the purest muriatic acid you can buy in commercial volume.

It contains a mere 0.0001% iron as maximum; only 0.003% sulfates; no free chlorine; no arsenic.

If your processing requirements are only slightly less rigid than these, you'll want to get acquainted with another member of the family: Hooker Commercial Grade muriatic. This grade contains only 0.0005% iron; 0.003% sulfates; a trace of free chlorine; no arsenic.

You can get either grade in 13-gallon carboys or in rubber-lined

tank cars, in three strengths: 18°, 20°, 22° Baumé. For technical data, check the coupon. If you'd like samples of either grade, please drop us a line on your business letterhead.

Sodium benzoate learns new tricks

One of the newer uses of sodium benzoate is in preservative wrappings and containers that improve the keeping qualities of food and other perishable products.

This old stand-by is exciting new interest also as a corrosion inhibitor where certain liquids are "packaged" in metal. Examples: the cooling system in your car; a can of paint.

Whether you're pioneering one of these interesting new uses, or putting sodium benzoate through one of its tried-and-true routines (such as preserving apple cider), you'll find a form and a grade at Hooker to suit your purpose.

Forms You can get Hooker sodium benzoate in a *flake* that's thick enough so it won't dust—yet thin enough to dissolve speedily when you want it to.

Or you may prefer a quick-dissolving *powder* form. We make both.

Grades For food and drug products, specify our USP grade. It's 99+%

pure; contains a maximum of 0.2% benzoic acid and 0.5% water.

For less exacting jobs, you still get a highly pure product in our Technical grade: 98% minimum, with only 0.4% benzoic acid at most.

For a more complete product description, check the coupon.



You can empty this caustic soda faster

Whether your operators scoop, pour, or shovel flake caustic soda, they will find this new Hooker drum easier, faster, and safer to work with.

The opening on this new drum is a full 18 inches in diameter—an increase of 65% in opening area. When the drum is inverted, caustic can't pile up around the inside as it does with other standard drums.

You pay no more for this extra convenience. To get it, just specify Hooker caustic soda in the 18-inch-opening drum.

For more information on chemicals mentioned on this page, check here:

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| <input type="checkbox"/> Sodium Benzoate | <input type="checkbox"/> New list of products—Bulletin 100-A |

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HALOGENATED COMPOUNDS such as Bromosalicylamide, Diiodosalicylic Acid; also Betaine Hydroiodide, Sodium Iodide.

AMIDES & ANILIDES such as Salicylamide, Salicylanilide.



These are but a few of the high-purity chemicals made in our well equipped plant located in the heart of the eastern market. Liquid raw materials can be received by barge or tanker and finished products shipped under your label by rail, truck or tanktruck. We have a 4 million gallon tankfarm on our premises and work three shifts, six days per week.

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CHEMO PURO

MANUFACTURING CORPORATION
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Chemical Week

August 17, 1957



Congressmen and technical experts gather to discuss scientific aspects of food additive question.

Finishing 1957's Food-Chemicals Fracas

Congress last week rang down the curtain on its 1957 study of proposed new controls of chemical food additives, freshly assured that the health and safety of the consuming public is under vigilant guard by the industries that produce and use these chemicals in food.

In the course of the hearings, this has become plain: within the next year, far more stringent broad-range legislation on chemical food additives will be enacted. This new legislation will have a powerful effect on an industry which last year turned out many varieties of additives, valued at \$160 million (*see table, p. 22*).

The industry can take heart that the legislators were willing to call in a panel of 15 scientists—members of the National Academy of Sciences-National Research Council's Food

Protection Committee. In two days of testimony before the House Health and Science Subcommittee, the panel advised Congress on "the scientific facts" of the current additives situation.

The Lineup: Eight bills are now under study, any one of which could have considerable impact on the giant food-additive-chemicals industry.

The bills vary widely in the degree to which they would subject additives to testing. Most stringent would be legislation proposed by Reps. James Delaney (D., N.Y.) and Leonor Sullivan (D., Mo.), requiring manufacturers to pretest additives for cancer-inducing properties in animals. Chemicals that produce cancer in test animals would be barred from food use.

More to the liking of the chemical

industry is the bill proposed by Rep. Joseph O'Hara (R., Minn.). His bill provides for a 90-day period in which the Food & Drug Administration would evaluate test data. If FDA is not convinced that a chemical is safe, it could ask a federal district court for a declaratory judgment barring the additive from commerce.

Issues: A number of factors contribute to the difficulty of clearing a path for comprehensive additive legislation. A fundamental obstacle is lack of knowledge on the subject—this is where the panel was to be of help in informing the subcommittee. Another is Congress' preoccupation with the concept of "toxicity *per se*," that is, that any additive shown to be poisonous should be banned without regard for the quantity used.

1956 Sales of Chemicals to the Food Industry

Phosphates and Acidulants		(Million Dollars)
Phosphates	\$24.0	\$39.7
Citric Acid*	10.0	
Lactic acid, lactates	2.2	
Tartaric acid	2.0	
Acetic acid	1.0	
Miscellaneous	0.5	
Colors—coal tar and noncoal tar		
	5.0	5.0
Nutritional supplements		
Vitamin A	4.0	12.0
Ascorbic acid*	2.0	
Thiamin	2.0	
Niacin, derivatives	1.5	
Riboflavin	1.0	
Lysine	0.5	
Others	1.0	
Sweeteners—cyclamates, saccharin		
	1.5	1.5
Thickeners and Emulsifiers		
	38.0	38.0
Flavoring agents		
M S G	20.7	41.1
Vanillin	4.7	
Methyl salicylate	1.7	
Others	14.0	
Protectants against spoilage		
Propionates	5.5	11.4
Antioxidants*	4.0	
Antibiotics	1.0	
Sodium benzoate	0.9	
Miscellaneous		
Humectants	1.6	12.6
Sulfur dioxide, derivatives	1.0	
Others	10.0	

Grand Total: \$161 Million

*Antioxidant figure includes citric and ascorbic acid used for this purpose.

Also a factor is the highly emotional atmosphere surrounding the entire subject of additives—particularly when charges are made that chemicals cause cancer. As the panel points out, some chemicals have been "condemned" on the basis of tests that are far more rudimentary—and far more costly—than tests used to answer the much simpler question of toxicity.

Still another obstacle is FDA's earnest desire to be able to show questioners that food additives are beneficial to consumers. Industry feels that this function is beyond the scope of FDA—a difference of opinion that has created a rift between industry and the federal agency.

Reconciliation: As it now stands, however, the FDA and chemical industry positions are not as far apart as some observers have indicated. Indeed, the worst area of disagreement between the two lies in procedure for appealing FDA's decisions on test data. FDA is dead set against the industry's desire to set up a system allowing a lay jury to decide whether an additive is safe.

Upshot: There's little doubt that the subcommittee will next year produce some food additives legislation—probably fairly early in the session. At the least, observers agree, it will contain a pretesting requirement for all new additives, will probably embody some basis for judging the acceptability of previously introduced additives. And, it will contain FDA's proposed administrative procedures, already backed to the hilt by the judicial conference representing the U.S. federal courts.

For an industry that has grown, particularly since World War II, to the estimated \$161 million in sales it rang up in 1956, legislation to assure safety is considered a practical necessity. Laws now in effect are outdated, contain loopholes that stymie sound enforcement.

Old Story: But what worries industry people most is that new legislation will not be flexible enough to cover the wide variety of applications of additives. For example, tranquilizing drugs already are being used on animals being shipped to stockyards. Object: to reduce weight loss due to nervousness. Such drugs could conceivably get into consumers' diets. Chemical makers—and food processors—wonder how effective new

laws will be in providing for a situation such as this.

And industry is worried over who would be held responsible for misuse of additives. The food-additive-chemical business crosses many lines. Not every chemical manufacturer can be sure of the end uses to which his products are being put.

Whatever the resolution of these problems, it's fairly certain that new legislation will appear next year. How far it will go toward satisfying both government and industry, no one can say. But it's pretty well agreed by observers that the new laws will set far stronger rules than now exist.

New Delay in GAF Sale

A pair of legal maneuvers last week complicated the government's plans to sell its holdings in General Aniline & Film Corp.

- Interhandel, the Swiss holding company that seeks to regain the GAF shares that were seized during World War II, appealed again to the U.S. Supreme Court for a reinstatement of its case. So far, Interhandel has failed to prove, to the satisfaction of the courts, that it was not enemy-controlled during the war. Its current move is part of its continuing effort to halt sale of U. S. government-held GAF shares.

- Another move to block the Justice Dept's plans to sell was made by Mrs. Galy Jacobs, an American stockholder in GAF. She fears that if the government sells, stock might fall into the hands "of former enemy owners." She seeks court action enjoining Attorney General Brownell from selling GAF, unless the sale is limited to American stockholders.

Delaying Action: Neither move is expected to seriously delay the eventual sale of the stock. The government lawyers are patient—they have been trying to sell the GAF shares since 1949, but continued appeals and legal entanglements have blocked all attempts.

In a series of court actions over the past eight years, Interhandel has been rebuffed in most of its efforts to regain the GAF stock. The Supreme Court, to which Interhandel now appeals, has once rejected the holding company's plea. Most observers feel that when the court reconvenes Oct. 1, it will again turn thumbs down.

Good News at Niagara

Electrochemical industry in the Niagara Falls region was encouraged last week by two major developments: Congress neared the end of its haggling over development of new Niagara Falls power and Niagara Mohawk Power Co. agreed to cut costs of 25-cycle power if industry would convert from 25- to 60-cycle equipment.

The House bill provides for the development of the resources by the New York State Power Authority. Now in the Senate, where it should slide through quickly, once the civil rights issues are disposed of, the bill offers these compromise features:

- 1.8 million kw. will be added to Niagara's output.
- Roughly half the power produced

will be set aside for the public-power customer (preference customers); the rest will go to industry and private utilities. Niagara Mohawk is guaranteed 445,000 kw.

- Power will be available in New York, Pennsylvania and Ohio, within a 150-mile radius of the plant. (The Senate may boost this to 250 miles.)

Niagara Mohawk also compromised: by selling 150,207 kw. of power for \$2.23/kilowatt of demand, NM will collect from industry about \$5 million less than it got last year. Industry has agreed to use these savings to convert to 60-cycle equipment consuming some 250,000 kw.

While industry gets a price break under the new plan, home and commercial customers face new price increases.



WIDE WORLD

McElroy: From Soap to Secretary

Relaxing at home is the new Secretary of Defense appointee, Neil H. McElroy, a standout among process industry chief executives.

Described by President Eisenhower as "one of the most capable persons I know in the country," the 52-year-old president of Procter & Gamble Co. will take over the post to be vacated by Charles E. Wilson, as

soon as routine checks are completed.

The energetic, Harvard-educated businessman's only previous venture into government service was in 1955, when he served as chairman of the White House Conference on Education. But McElroy's capacity for leadership, unquestioned in the business world, stands him in good stead to cope with the difficult Cabinet post.

Move on Medicaments

Refreshed by the big splash made a few weeks back by his hearings on filter-tip cigarettes, Rep. John Blatnik (D., Minn.) last week made more headlines when his subcommittee heard doctors and federal officials blast product claims of weight-reducing-pill promoters.

Their conclusion: the pills just don't do the job and overweight consumers are wasting the money they spend on them.

The task of obtaining clinical proof to sustain charges and solid evidence to back them up, testified Federal Trade Commission Chairman Sigurd Anderson and Food & Drug Commissioner George P. Larrick, is a major undertaking that neither agency can handle without large additional funds and staffs.

FTC—on a more limited scale, however—is checking into advertising claims made on behalf of regimen reducing pills, Anderson testified. But, all it can do under present law is order an end to extravagant claims.

Up Flag: Blatnik is now zeroing in on his next target. He's expected to go after tranquilizer drugs—both the over-the-counter proprietary types and tranquilizers sold only on a doctor's prescription. In the case of the former, the subcommittee will likely cover the same field that has proved so fruitful in publicity up to now: whether these drugs match the claims made for them by advertising. Blatnik will probably take a different tack when and if he turns to the ethical-type tranquilizers.

Impressed with the quantity and lavishness of promotion material distributed by tranquilizer makers to physicians, Blatnik's committee will probably focus attention on:

(1) The cost of this heavy promotion as a factor in drug prices.

(2) Whether physicians are being subjected to undue sales pressure and are getting accurate, government-approved information from manufacturers on prescribed dosages and uses.

Both of these factors would give added emphasis to similar questions previously raised by other government agencies. The first, for example, would parallel questions raised by Congressional appropriations committees on the high cost of new drugs (e.g., antibiotics). And the second may echo complaints by the Food & Drug Ad-



WIDE WORLD

Rep. Blatnik: Reducing-pill claims are hard to swallow.

ministration of distortions of previously okayed text in brochures mailed to doctors by some drug firms (though not necessarily tranquilizer makers).

A definite date has not been scheduled for the tranquilizer hearings, but it's considered certain they'll take place before Congress adjourns.

Trouble at Swan-Finch

The proposed sale of Swan-Finch Oil Corp.'s petrochemical division to Michigan Chemical Corp. appears uncertain this week as financially plagued Swan-Finch goes into receivership.

In New York state supreme court, Justice Owen McGivern, acting on a motion filed last week by eight stockholders, appointed Thomas J. Shannahan, president of the Federal Bank & Trust Co. (New York), as receiver. Shannahan is to carefully conserve company assets and bring about election of new officers if necessary.

The receivership proceedings are sure to affect Swan-Finch's proposed sale of its petrochemical division (*CW*, Aug. 10, p. 23). Stockholders were to have the final say about the sale, but now Shannahan is the only one who can approve sale of Swan-Finch assets. Shannahan tells *CW* he'll probably need more time to evaluate sale terms.

Justice McGivern says Swan-Finch officials have "not given a satisfactory answer to charges of waste, dissipation and dilution of the company's assets."

And, adds McGivern, "Though the defendants have been asked to produce a current financial statement, no up-to-date balance sheet has yet been submitted to the court."

New Cyanamid Link?

Merger-minded American Cyanamid last week cast its corporate eye in a new direction. It signed up to buy the business and assets of Illinois Powder Mfg. Co. (St. Louis, Mo.).

The proposed purchase, which needs only the approval of Illinois Powder stockholders (who will meet Aug. 31), would round out American Cyanamid's coverage in industrial explosives: most of Cyanamid's explosives manufacturing and sales facilities are in the eastern half of the U.S.; most of Illinois Powder's is in the Midwest and West.

The price Cyanamid offers to pay to gain national distribution is 88,000 shares of its common stock—current total value: about \$3.8 million.

Urge to Merge: Cyanamid's latest merger plan comes only two weeks after feelers for a combination with Norwich Pharmacal were pinched off by legal complications (*CW Business Newsletter*, Aug. 3).

Norwich would have brought new products to Cyanamid, put the latter solidly into the proprietary drug business; Illinois Powder offers no comparable inducements. Its big assets are manufacturing and distribution facilities. Also, where Norwich would have been taken on as a separate division, Illinois Powder is to be absorbed into Cyanamid's explosives division.

Illinois Powder, 50 years old this year, makes high explosives, including blasting gelatin, ammonia, nitroglycerine, dynamite, and permissible powders. It has manufacturing plants in Grafton, Ill., and Gomex, Utah, and 50 magazines in some 24 Western states.

Cyanamid, also in its 50th year, produces the same kind of explosives in plants in Latrobe and New Castle, Pa., has magazines in 15 states.

Cyanamid's major markets for explosives: the federal roadbuilding program, and the metal-mining, quarrying and construction industries. It estimates that, by '60, the construction industry will consume half the total output of industrial high explosives.

EXPANSION

Plastic Pipe: Orangeburg Mfg. Co., Inc. (Orangeburg, N.Y., and Newark, Calif.), has acquired 3.5 acres of plant site and new manufacturing facilities at Marion, Ind. Object: to expand production of polyethylene pipe, for which Allied Chemical supplies raw materials. Installation of new machinery will take about six months.

Asphalt: Cities Service Oil Co. is replacing its 15,000-bbls./day asphalt plant at Linden, N.J., with a 20,000-bbls./day plant to be completed next year.

Adhesives: Chemical Process Co. (Redwood City, Calif.) is expanding its adhesives division by 250%. Cost: \$120,000. Output will go chiefly to the forest products industry. New facilities will be ready by Nov. 1.

Pulp & Paper: Southland Paper Mills Co. will start construction next month of a new "multimillion-dollar" paper mill near Lufkin, Tex. The project is slated for completion late in 1958. Brown & Root Inc. is the contractor.

COMPANIES

Archer-Daniels-Midland Co. (Minneapolis) has purchased all the assets of Federal Foundry Supply Co. (Cleveland). Federal makes a variety of foundry products and adhesive clay—the latter used in oil drilling, papermaking and allied industries.

Pittsburgh Coke & Chemical Co. has acquired Insul-Mastic Co. (Summit, Ill.) in a cash transaction. Insul-Mastic produces industrial protective coatings and will continue operating as a part of Pittsburgh Coke's protective coatings division.

General Tire & Rubber Co. directors have approved a proposal to split the company's common stock 3 for 1. Plans call for its common to be increased from 2.5 million to 7.5 million shares. Stockholders will be asked to approve the plan at a special meeting Sept. 5.

Scurry-Rainbow Oil Ltd. and U.S. Smelting, Refining & Mining Co. are negotiating to form a jointly owned company. The new firm would consolidate all of Scurry's Saskatchewan, Can., properties, and would be the exclusive representative of both companies in the province. Scurry's president, Howard Jones, says the venture would "provide his company with a strong partner" to help in developing the unworked resources in the area. U.S. Smelting currently holds about 400,000 of the total 13.6 million outstanding Scurry-Rainbow shares.

Paisley Products Inc., subsidiary of Morningstar, Nicol, Inc., has acquired Los Angeles Paste Co. (Los Angeles) for an undisclosed sum. Paisley is a leading producer of adhesives.

Chas. Pfizer & Co. has acquired Morton-Withers Chemical Co. (Greensboro, N.C.), producer of petroleum sulfonates and chemical specialties for the petroleum, rubber and plastic industries. The North Carolina firm will continue operating as a wholly owned subsidiary of Pfizer.

Westminster Paper Co., Ltd. (Vancouver, B.C.), will purchase the Crabtree Mills division of Howard Smith Co. The division's mill is near Joliette, Que., 45 miles north of Montreal. Price has not been disclosed.

FOREIGN

Petrochemicals/Peru: Fertilizantes Sinteticos S.A., Peruvian chemical firm, is building a \$9-million petrochemical plant north of Callao between the Chillan and Rimac rivers. Present annual production targets are 25,000 tons of ammonium nitrate for fertilizer; 5,000 tons of refined ammonium nitrate and 1,500 tons of nitric acid for use in explosives manufacture; 15,000 tons of ammonium sulfate and 1,000 tons of anhydrous ammonia for other agricultural products.

The company is capitalized at \$4 million, with a comparable amount advanced by a financial group headed by Banca Commerciale de Milan, Italy. Eighty percent of the stock is held by Peruvian interests and the balance by Italian and Swiss investors.

Machinery for the plant will be imported from Italy and technical help will come from Montecatini.

Natural Gas/Japan: A Japanese firm, Teikoku Oil Co., has found three new natural-gas layers along the northern coast of central Honshu Island near Niigata City. From these sources, Teikoku plans to supply 100,000 cu. meters/day to Toyo Gas Chemical's new fertilizer plant now being built nearby. It will also supply natural gas to Mitsubishi Chemical's plant at Uchino, near Niigata.

In all, Teikoku plans to drive 30 wells on 12 bases in the region. Up to now, 18 wells have been drilled; 15 of them are ready to use.

Synthetic Rubber/Japan: B. F. Goodrich Chemical Co. will give technical aid to Japan Geon Co., Ltd., in the manufacture and processing of synthetic rubber, under a 15-year contract with the Japanese firm.

Geon will pay Goodrich a \$486,110 fee and royalties amounting to about 3% of Geon's sales.

In addition to providing research and development assistance to Geon, Goodrich will advise the firm in the construction of a plant at Kawaski, near Toyko.



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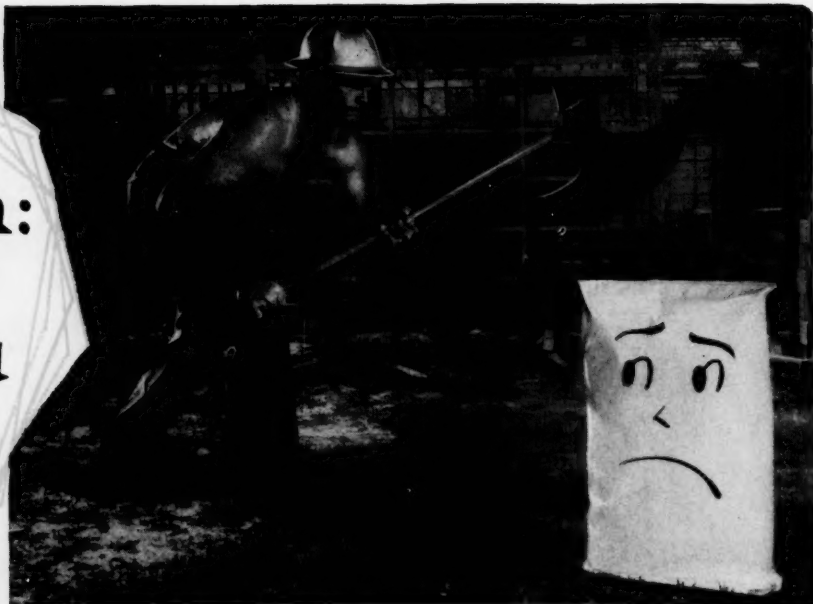
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Florida's Citrus Groves: There's a \$15-million business saving a \$250-million crop of fruits.

Citrus: Fertile Field for Pesticide Makers

Pesticide makers got an indirect boost from Florida's lawmakers just recently when the state legislature set aside money to pay farmers for good trees lost in using the "pull-and-treat" method to fight nematode-caused (see also p. 58) "spreading decline."

Now, farmers will be more eager to employ the expensive "pull-and-treat" program, which depends on the soil fumigant dichloropropene-dichloropropane (used 60 gal./acre).

And the state, eager to end the outlay for farmer compensation, will push its program to find a chemical to stop spreading decline without ruining good trees.

Interdependent Industry: The move by the legislature on a matter concerning the citrus industry isn't surprising; citrus-growing is the No. 2 (after tourism) industry in the state. What it does point up is how much the citrus industry depends—and may have to increase its dependence—on the pesticide industry.

It's a two-way street—probably in no other state has the rise in farm output been so closely tied to the increase in the value of the insecticide business: while the citrus industry has climbed in value from \$95.5 million in 1947 to \$250 million in '57, the value of pesticides bought by Florida

farmers has shot from under \$5 million to \$15 million. In that time, the number of farm insecticides makers has risen from a handful to about 40.

Both industries seem sure to continue their rise. In just the last two years, Florida's fruit output has climbed from 129 million boxes to a whopping 135 million. An increasing frozen concentrate business, as well as an even more spectacularly increasing whole juice business (already, the latter industry has used 5 million boxes of fruit this year), presages a climb in the need for pesticides.

Problem Solver: The citrus industry

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WATERPROOFING
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SPECIALTIES

is clearly counting on the pesticide makers to come through with a way to halt the spreading decline. The search has been under way for a long time (see *CW*, *Target*, April 16, '55, p. 70). So far, the ideal chemical has not been found. But the chemical industry has come through brilliantly in several other areas:

- Parathion, introduced about '47, provided a one-shot control of red and purple scale as well as citrus mealy bugs.

- Related phosphates, insecticides, some systemic in action, have provided even safer ways of still broader insect control.

- Malathion helped wipe out the threat of the Mediterranean Fruit Fly. The campaign took a little over three months. In 1929, an earlier Medfly invasion took nearly 18 months to conquer—prior to modern insecticides.

In solving such problems for the farmers, Florida's insecticide makers have built a \$15-million business. It's plain they see gold in them thar oranges.

Aerosols on the Table

A peek at the lines of research that may put aerosol cans smack in the middle of food packaging was provided by Continental Can Co. last week. Most striking features of the as-yet noncommercial pressure package: (1) a new type of valve that dispenses the contents in a solid stream (rather than a foam or mist) and (2) use of nontoxic propellents such as nitrogen, carbon dioxide, nitrous oxide, and even argon—rather than the fluorinated hydrocarbons.

Continental, with a prime interest in providing the containers, has lab-filled units containing such items as maple syrup, ketchup, cake toppings, chocolate syrup, sundae toppings.

Combination Solution: According to Continental, no one firm and no one product has brought the food aerosols to the verge of commercialization. It has been the combined efforts of valve makers, can makers, and propellant suppliers.

Though a number of valve makers



WIDE WORLD

Off to a Blaze in a Flash of Rockets

Probably the fastest-moving fire fighter in the business is the new rocket-powered model shown above.

Sending the test rockets on their way with their load of fire-killing borate solution is Grand Central Rocket Co. engineer Robert W. Greene. The rocket carries a payload of sodium-calcium

borate and water, a fire-fighting combination tradenamed Firebrake by U.S. Borax & Chemical Corp. (*CW*, Nov. 17, '56, p. 128). The rockets will help contain small, difficult-to-reach, brush fires, allow fire fighters on the ground to reach the scene before the blaze gets out of hand.

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Chloride

Sb

Antimony
Pentachloride

Sb

Antimony
Trichloride

B

Boron
Trichloride

Si

Silicon
Tetrachloride

Ti

Titanium
Tetrachloride

Zr

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DEPARTMENT

August 17, 1957 • Chemical Week

FOR METHANOL

CALIFORNIA	Los Angeles..... Braun Corporation
	San Francisco..... Braun-Knecht-Heimann Co.
COLORADO	Denver..... The Chemical Sales Co.
FLORIDA	Jacksonville..... Apperson Chemical, Inc.
	Miami..... Biscayne Chemical Labs, Inc.
	Orlando..... Lenfestey Supply Company
	Tampa..... Lenfestey Supply Company
GEORGIA	Atlanta..... Chemical Services, Inc.
ILLINOIS	Chicago..... Central Solvents & Chemicals Co.
	Chicago..... Phillips & Martin Co.
INDIANA	Indianapolis..... Hoosier Solvents & Chemicals Corp.
	Indianapolis..... Hoosier Solvents & Chemicals Corp.
KANSAS	Wichita..... Barada & Page, Inc.
KENTUCKY	Louisville..... Dixie Solvents & Chemicals Co.
LOUISIANA	New Orleans..... Southern Solvents & Chemicals Corp.
MARYLAND	Baltimore..... Leidy Chemicals Corp.
MASSACHUSETTS	Boston..... Howe & French, Inc.
MICHIGAN	Detroit..... Western Solvents & Chemicals Co.
	Grand Rapids..... Wolverine Solvents & Chemicals Co.
MINNESOTA	St. Paul..... Lyon Chemicals, Inc.
MISSOURI	Kansas City..... Barada & Page, Inc.
	Kansas City..... Missouri Solvents & Chemicals Co.
	St. Louis..... Missouri Solvents & Chemicals Co.
METROPOLITAN NEW YORK	Lyndhurst, N. J..... Stoney-Mueller, Inc.
NEW YORK	Binghamton..... Collier Chemicals, Inc.
	Buffalo..... Chemical Sales Corp.
	New York..... Stoney-Mueller, Inc.
	Rensselaer..... Eastern Chemicals, Inc.
	Rochester..... Chemical Sales Corp.
NORTH CAROLINA	Durham..... Cardinal Products, Inc.
OHIO	Cincinnati..... Amco Solvents & Chemicals Co.
	Cleveland..... Ohio Solvents & Chemicals Co.
	Toledo..... Toledo Solvents & Chemicals Co.
OKLAHOMA	Tulsa..... Ward Chemical & Supply Co.
OREGON	Portland..... Van Waters & Rogers, Inc.
PENNSYLVANIA	Pittsburgh..... Vitro Manufacturing Co.
TENNESSEE	Memphis..... Chapman Chemical Co.
TEXAS	Dallas..... Texas Solvents & Chemicals Co.
	Dallas..... Van Waters & Rogers, Inc.
	Houston..... Texas Solvents & Chemicals Co.
	Houston..... Van Waters & Rogers, Inc.
UTAH	Salt Lake City..... Braun-Knecht-Heimann Co.
	Salt Lake City..... Wasatch Chemical Co.
WASHINGTON	Seattle..... Van Waters & Rogers, Inc.
	Spokane..... Van Waters & Rogers, Inc.
WISCONSIN	Milwaukee..... Wisconsin Solvents & Chemicals Corp.

FOR UREA

ALABAMA	Birmingham..... F. H. Ross & Co.
	Mobile..... F. H. Ross & Co.
CALIFORNIA	Los Angeles..... Braun Corporation
	San Francisco..... Braun-Knecht-Heimann Co.
CONNECTICUT	South Norwalk..... Merchants Chemical Co., Inc.
FLORIDA	Jacksonville..... F. H. Ross & Co.
GEORGIA	Atlanta..... F. H. Ross & Co.
	Columbus..... F. H. Ross & Co.
	Savannah..... F. H. Ross & Co.
ILLINOIS	Chicago..... Central Solvents & Chemicals Co.
INDIANA	Indianapolis..... Hoosier Solvents & Chemicals Corp.
	Indianapolis..... Hoosier Solvents & Chemicals Corp.

KENTUCKY	Louisville..... Merchants Chemical Co., Inc.
LOUISIANA	New Orleans..... Barada & Page, Inc.
MARYLAND	Baltimore..... Leidy Chemicals Corp.
MASSACHUSETTS	Fall River..... Borden & Remington Co.
	Worcester..... Chemical Sales & Service Co., Inc.
MICHIGAN	Detroit..... Eaton Chemical & Dyestuff Co.
MINNESOTA	Minneapolis..... Merchants Chemical Co., Inc.
MISSISSIPPI	Jackson..... F. H. Ross & Co.
MISSOURI	Kansas City..... Barada & Page, Inc.
	St. Louis..... Barada & Page, Inc.
	St. Louis..... Missouri Solvents & Chemicals Co.
NEW JERSEY	Newark..... National Oil & Supply Co.
	Paterson..... Brown Chemical Co., Inc.
NEW YORK	Buffalo..... Chemical Sales Corp.
	Hicksville, Long Island..... National Oil & Supply Co.
	New York..... Merchants Chemical Co., Inc.
NORTH CAROLINA	Charlotte..... F. H. Ross & Co.
	Greensboro..... F. H. Ross & Co.
	Raleigh..... F. H. Ross & Co.
OHIO	Cincinnati..... Merchants Chemical Co., Inc.
	Cleveland..... Ohio Solvents & Chemicals Co.
	Columbus..... Merchants Chemical Co., Inc.
OREGON	Portland..... Van Waters & Rogers, Inc.
PENNSYLVANIA	Altoona..... Western Penna. Chemical Co., Inc.
	Erie..... Western Penna. Chemical Co., Inc.
	Middletown (Harrisburg)..... Western Penna. Chemical Co., Inc.
	Philadelphia..... Pioneer Salt Co.
RHODE ISLAND	Providence..... Borden & Remington Co.
	Providence..... George Mann & Co., Inc.
SOUTH CAROLINA	Columbia..... F. H. Ross & Co.
	Greenville..... F. H. Ross & Co.
TENNESSEE	Chattanooga..... Burkart-Schier Chemical Co.
	Knoxville..... Burkart-Schier Chemical Co.
	Knoxville..... F. H. Ross & Co.
	Nashville..... Burkart-Schier Chemical Co.
TEXAS	Dallas..... Van Waters & Rogers, Inc.
	Houston..... Van Waters & Rogers, Inc.
UTAH	Salt Lake City..... Braun-Knecht-Heimann Co.
WASHINGTON	Seattle..... Van Waters & Rogers, Inc.
WISCONSIN	Milwaukee..... Merchants Chemical Co., Inc.

FOR "HEXALIN" & "HYTROL" O

CALIFORNIA	Los Angeles..... Braun Corporation
	Los Angeles..... Mefford Chemical Company
	San Francisco..... Braun-Knecht-Heimann Co.
ILLINOIS	Chicago..... Central Solvents & Chemicals Co.
INDIANA	Fort Wayne..... Hoosier Solvents & Chemicals Corp.
	Indianapolis..... Hoosier Solvents & Chemicals Corp.
KENTUCKY	Louisville..... Dixie Solvents & Chemicals Co.
MASSACHUSETTS	Boston..... Howe & French, Inc.
	Worcester..... Chemical Sales & Service Co., Inc.
MICHIGAN	Detroit..... Western Solvents & Chemicals Co.
MISSOURI	Kansas City..... Missouri Solvents & Chemicals Co.
	St. Louis..... Missouri Solvents & Chemicals Co.
NEW JERSEY	Newark..... C. P. Chemical Solvents, Inc.
OHIO	Cincinnati..... Amco Solvents & Chemicals Co.
	Cleveland..... Ohio Solvents & Chemicals Co.
	Toledo..... Toledo Solvents & Chemicals Co.
TEXAS	Dallas..... Texas Solvents & Chemicals Co.
	Houston..... Texas Solvents & Chemicals Co.
WISCONSIN	Milwaukee..... Wisconsin Solvents & Chemicals Corp.

*Reg. U. S. Pat. Off.

Rare Earth Chemicals



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Rare earths are rare today in name only. Although the word "rare" seems to imply high cost, mixed rare earth chemicals are available today in quantity at reasonable prices.

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SPECIALTIES

are now interested in the new program, trade sources indicate that Kalmar, Inc. (Los Angeles), Precision Valve (Yonkers, N. Y.), and Seaquist Valve (Cary, Ill.) have thus far produced most of the valves that are working models for food-packing use. A variety of suppliers of industrial and medical gases have been providing the nontoxic propellents.

Container design, according to Continental, at least, seems to be the item most readily and easily adapted to food products. The container units that CCC has packed are virtually unmodified standard CCC aerosol cans. No special linings are required; the cans are units that definitely do not use the envelope or diaphragm systems suggested several years ago to keep propellant away from the food-use products.

Curtis Readies a Reply

Helene Curtis, just rapped on the knuckles by the Federal Trade Commission for its TV ads about its anti-dandruff shampoo, Enden (*CW Business Newsletter*, Aug. 3), has about readied its reply. Theme: there is basically little difference between FTC's ideas on what can be said about dandruff-removing shampoos, and what Curtis is currently saying.

FTC, which has been monitoring TV and radio programs the past few months, says that Enden is advertised on TV as a cure for dandruff, whereas "in truth, Enden shampoo will not cure dandruff or have any other lasting effect."

Curtis, in line with what it interprets as the FTC's wishes, says it plans to modify its ad program to emphasize the need for continued use of the shampoo in order to maintain dandruff control—a modification that it hopes will satisfy FTC.

Claim Proof: Curtis, however, doesn't go along with FTC's assertions that Enden is ineffective. It, along with the other firms making an anti-dandruff pitch (*CW*, Dec. 22, p. 56), has accumulated considerable research data to back its claims.

Since 1950, when FTC objected to claims made for Fitch's dandruff-remover shampoo, specialties makers have been particularly wary of their statements about dandruff-removing products. The FTC complaint against Curtis, therefore, came as somewhat of

Commercial quantities of

ETHYLENEDIAMINE

98%

**now
on stream at
DOW**

Consider the production savings a 98% concentration of ethylenediamine can offer you. Then call Dow.

This is the first time such a highly concentrated form of ethylenediamine has been made available in commercial quantities.

Write for a sample. See for yourself the saving you can make.

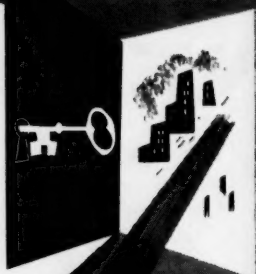
If you need commercial quantities, don't hesitate to place your order. We can assure you of prompt delivery.
THE DOW CHEMICAL COMPANY, Midland, Michigan.

Special Note: There is no increase in price over our old 76% ethylenediamine.

YOU CAN DEPEND ON



An avenue
opens to
new answers
in filtration



Filtration studies never possible before except on a pilot plant scale are now made quickly, inexpensively and more accurately through a new development of Dicalite research.

This device, a rotary precoat filter test leaf, is the first precise and practical laboratory-scale device available for study of the process variables in rotary precoat filtration. With it, complete tests of all the major variables can be made in a few hours with a few gallons of process liquor. A long series of these tests has demonstrated that the results obtained with the Dicalite Rotary Precoat Filter Test Leaf show close agreement with those subsequently obtained in full-scale plant operation.

Tremendous possibilities are thus opened up to processing people by this latest Dicalite contribution to the advancement of filtration technology.

For further information please write:

Dependable
G.L.C.
GREAT LAKES
Dicalite
DIATOMACEOUS MATERIALS

DICALITE DEPARTMENT, Great Lakes Carbon Corporation, 612 South Flower St., Los Angeles 17

SPECIALTIES

a surprise to these companies, which in the past year have launched a number of products for dandruff treatment.

From all indications, Curtis is seeking to avoid as much trouble with FTC as possible. It has 30 days—until late August—to answer the complaint.

PRODUCTS

Acid Inhibitor: Enthone Inc. (New Haven, Conn.) has just brought out Acid Inhibitor 11 that retards acid-etching of high-carbon steel. About 0.2% of the inhibitor by volume in sulfuric (hot or cold), phosphoric, hydrofluoric and citric acids is said to provide protection. The product is nonfoaming and odorless.

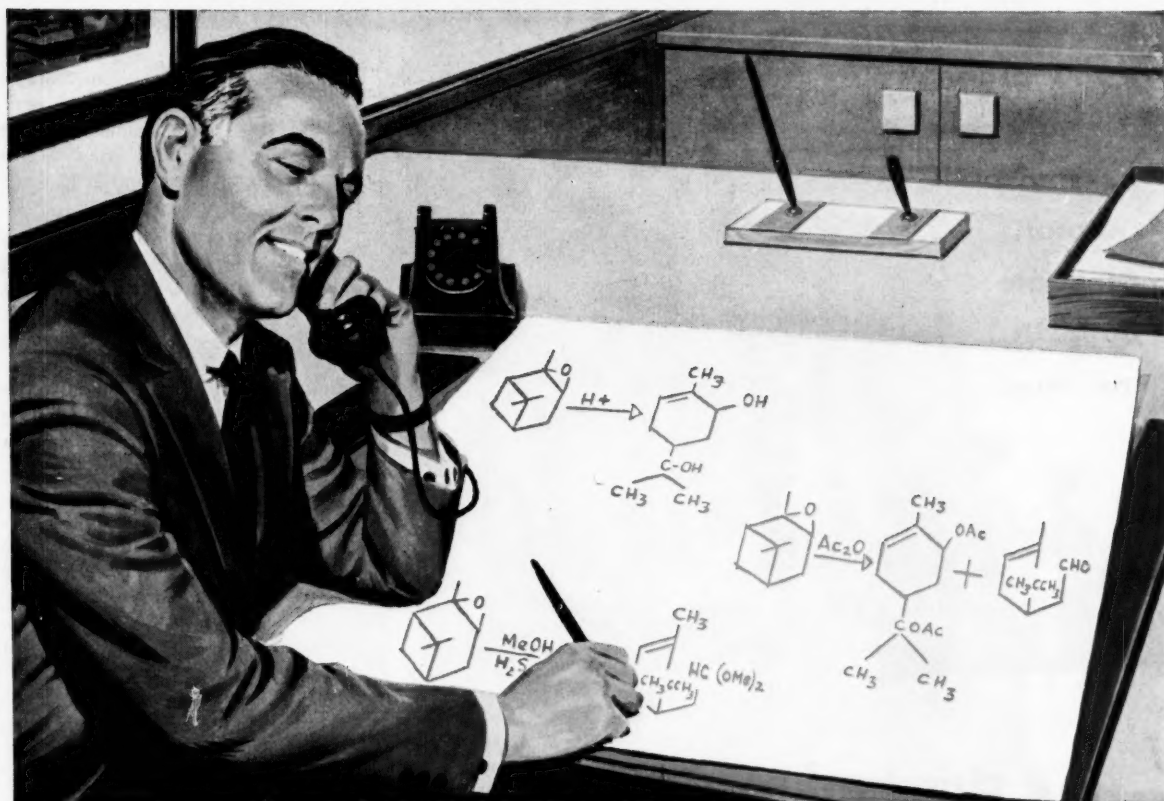
Conveyor Lubricant: Anderol L-825, an extreme-high-temperature oil, is offered by Lehigh Chemical Co. (Chesterstown, Md.) for use on conveyor-belt machinery. Operating range of the lubricant is about 500-600 F, for short periods. It's available in 5-gal. and 55-gal. drums, and in bulk quantities.

Stripper: A flaky, light organic compound called Iso-Strip is newly available from Wagner Bros. (Detroit) for metal-stripping operations. In combination with sodium cyanide, and dissolved in water, the material will strip plated deposits from ferrous-base metals without use of electrical current. The product is claimed to remove 0.0005 in. of nickel in 20 minutes, at 140 F.

Sealing Agent: Stillman Rubber (Culver City, Calif.) has developed a new compound copolymer that, it says, offers exceptional oil and fuel resistance at extreme temperatures. It's designated SR251-70.

Antioxidant: Catalin AC-5, a new antioxidant that inhibits oxidative degradation of rubber is the latest offering of Catalin Corp. of America. The material's low volatility suits it for use in nonrubber products (e.g., petroleum hydrocarbons) subjected to high temperatures. Another possibility: polymerization inhibitor in chemical engineering.

Steel Primer: Canadian Industries Ltd. recently developed a new struc-



Heard the latest about Terpenes?

Becco has epoxidized them! More than five years of research on epoxidation have produced some interesting new products. Dipentene Monoxide and α -Pinene Oxide are now out of the laboratory and available, even in drum quantities.

Becco Dipentene Monoxide combines the reactivity of an epoxy group with that of an olefinic double bond in a cyclic terpene molecule. This compound undergoes the usual reactions of the epoxy group and the external double bond in a terpene molecule.

Becco α -Pinene Oxide combines the reactivity of an epoxy group with that of the bicyclic system of α -Pinene causing it to undergo some unusual reactions. It does not undergo the ring-opening reaction of an epoxide but rearranges in the presence of acid. In water solution, sobrerol is the main product; in anhydrous media, it is campholenic aldehyde.

These terpene oxides have many potential uses as intermediates in the manufacture of perfumes, flavors,

pharmaceuticals, protective coatings, insecticides, bactericides, lubricant additives, adhesives, plasticizers, flotation agents, and in organic synthesis.

Typical properties of these epoxides are:

	% Oxirane Oxygen	F.P. °C	B.P. °C	Density at 20°C	Solubility
Dipentene Monoxide	8.9	< -60	74-76 (10 mm)	0.929	Insoluble in water. Soluble in most of the common solvents.
α -Pinene Oxide	9.4	< -60	61-62 (10 mm)	0.963	

Write Becco for experimental quantities and technical assistance in possible application for these compounds. Ask for Becco Bulletins Nos. 81 and 82.

BECCO CHEMICAL DIVISION
Food Machinery and Chemical Corporation
Station B, Buffalo 7, New York

BUFFALO • BOSTON • CHARLOTTE, N.C. • CHICAGO
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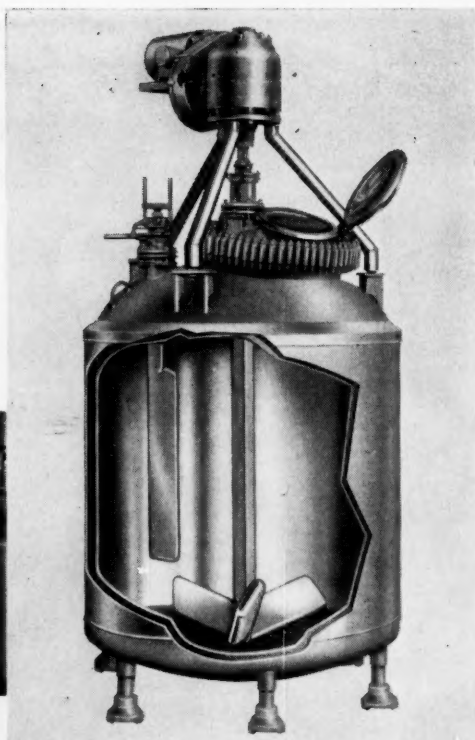
Progress in Peroxygens

BECCO



FMC CHEMICALS INCLUDE: BECCO Peroxygen Chemicals • WESTVACO Phosphates, Barium and Magnesium Chemicals • WESTVACO Alkalies, Chlorinated Chemicals and Carbon Bisulfide • NIAGARA Insecticides, Fungicides and Industrial Sulphur • OHIO-APEX Plasticizers and Chemicals • FAIRFIELD Pesticide Compounds and Organic Chemicals

If your process
demands a
custom-built
reactor,
Glascote®
builds it
that way...



...if a standard reactor will do—
Glascote can help you too

**AVAILABLE IN A RANGE
FROM 300 TO 2000
GALLON CAPACITIES**

Our standard one-year guarantee
continues to apply to all Glascote
glass-lined products.

Glascote®
PRODUCTS, INC.

Sales offices or agents located in
New York • Philadelphia • Union, N. J.
Chicago • Cleveland • Dayton
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Export Sales: A. O. Smith Corp.,
International Division: Milwaukee 1, Wisconsin

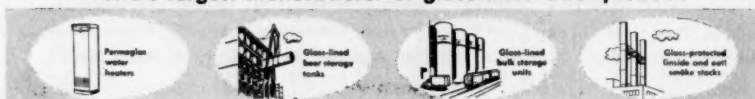
GLASCOTE has accelerated its reactor
production to include standard de-
signs in the HR (heavy-duty closed),
CR (clamp-top) and SR (standard closed)
series reactors.

Outstanding features include Glascote's
exclusive leak-proof mechanical seal,
glass-coated agitator and baffle. Whether
it's blending, mixing or gas absorption,
here's a surprisingly economical way to
enjoy the superior characteristics of Glas-
cote acid-alkali-resistant glass lining, for
all types of corrosive processing. Sets new
standards in product purity . . . longer
equipment life.

Glascote also gives you non-stick glass
linings for polymer production. And of
course, Glascote will continue to make
custom-built reactors in capacities to 4000
gallons and larger. Internal and jacket
pressures to meet your exact specifications.

Ask the representative who calls on you for all
the facts about Glascote products — reactors,
storage tanks, columns, conical rotary dryer-
blenders, receivers, condensers and accessory
products. Or, if you prefer, write direct. Glascote
Products, Inc., Cleveland 17, a subsidiary of
A. O. Smith Corporation.

A subsidiary of **A.O. Smith** Corporation
World's largest manufacturer of glass-lined steel products



SPECIALTIES

tural-steel primer tradenamed 4715-19. The new paint, which meets specifications of the Canadian Institute of Steel Construction, dries to the touch in six hours, is hard in 12.

Nickel Stripper: United Chemical Corp. (Providence, R.I.) is marketing a new nickel stripper called Ni-Plex. It contains no cyanide, caustic or acid, doesn't fume, and is said to be stable for long periods at elevated temperatures. One gallon of material strips about 44 sq. ft. of 0.0001-in. nickel plate. Stripping rate at room temperature is 0.00025 in./hour.

Vinyl Foam: Open-cell vinyl foam, suitable for electronic heat-sealing to cloth or vinyl sheeting, is now being offered by Foam King Inc. (New York). Tradenamed Foam King No. 738, it's available for heat-sealing to transparent sheeting or single side exposure. Densities from 6.5 lb./cu.ft. up and thicknesses from 1/16 in. up are available.

Toothpaste Tablet: Twigger, a toothpaste in tablet form, is now being offered by Lanpar Co., a Dallas pharmaceutical house. The effervescent action of the tablet is claimed to carry the cleansing agent between the teeth. Lanpar sells Twigger as a supplement to, not a replacement for, a toothbrush.

Peck Stopper: S. B. Penick & Co. has just introduced a new spray designed to stop cannibalism in poultry (poultry will peck some flock members to death). Called Tram, it's said to speedily curb the desire to peck. In tests, single applications proved effective for periods of two weeks to three months. The product is nonflammable, comes in pint, quart and gallon cans.

Color-Testing Paint: Sun Chemical has developed a neutral gray paint for use in printing plants and experimental labs where color tests are being conducted. Surfaces finished with the paint show virtually linear response to all wave lengths in the visible spectrum. Over-all reflectance is approximately 60%. Available in three finishes—flat, semigloss and enamel—the paint is sold on a custom basis. Name: Graphic Arts China-Luxe Gray.

ATLANTIC

RELATIONSHIP OF PARAFFIN HYDROCARBONS
RELATIVE VISCOSITY VS. MELTING POINT OF HYDROCARBONS



Technical Eicosane is a water-white, hydrocarbon mixture that is readily chlorinated to give you a product of outstanding stability. Its melting point is about 32.5° F. As a result, Technical Eicosane contributes to a substantially higher percentage at any given viscosity.

You'll find Technical Eicosane is adding a sales plus to many products... as examples, chlorinated Technical Eicosane is being used in compounds to flame-proof plastics... is adding extra miles to automotive lubricants... as a raw material, Technical Eicosane is used in the manufacture of chemical plasticizers.

Turn page to know the Atlantic family of petrochemicals—and the opportunities they offer in the development of new and better products. Tell us if you'd like to have Atlantic help you in putting Technical Eicosane to work in your product.

THE ATLANTIC REFINING COMPANY

Dept. M-2, Chemical Products Sales
200 South Broad Street, Philadelphia, Pa.
Please send me information on Atlantic Technical Eicosane.

Name _____

Company _____

Address _____

City _____

State _____

ATLANTIC

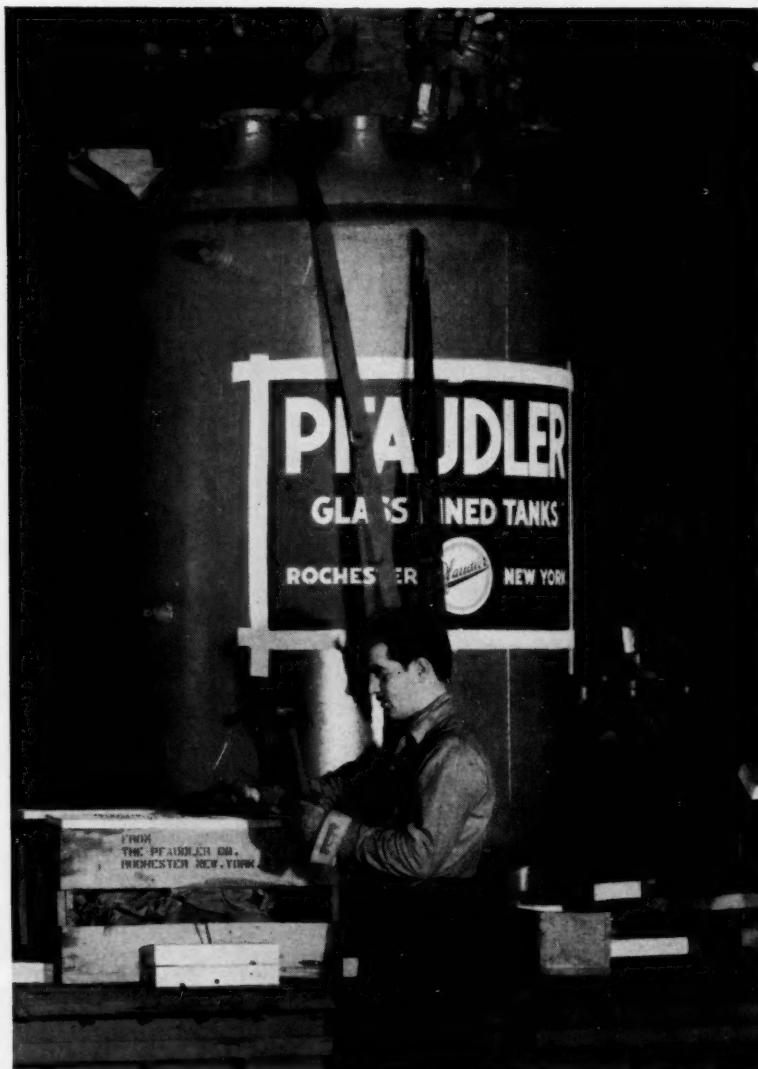
PETROLEUM
CHEMICALS

Philadelphia, Providence, Charlotte, Chicago
In the West: L. H. Butcher Co.
In Canada: Naugatuck Chemicals Division of
Dominion Rubber Company Ltd.
In Europe: Atlantic Chemicals SAB, Antwerp, Belgium
In South America: Atlantic Refining Company
of Brazil, Rio de Janeiro

Titan Superjectors—continuous-type centrifuges—operate as long as a month without shutdown for cleaning. ASK FOR BULLETIN 946.

Pfautler Corrosioneering News Published by The Pfautler Co., Rochester, N. Y.

Pfautler



READY TO GO. A standard 500-gallon reactor is readied for quick shipment to Gamma Chemical. This vessel was on its way to Gamma's Great Meadows plant even before a

written order had arrived! Stock standard reactors usually enable Pfautler to meet 10 day delivery schedule.

Emergency at Gamma Chemical met by 3-day delivery of 500-gallon reactor

When extra processing capacity was urgently needed recently at Gamma's Great Meadows plant in New Jersey to custom-process a new organic chemical, Gamma called Pfautler and asked how fast a 500-gallon reactor could be shipped.

"How about the day after tomorrow," countered Pfautler. "Sold!"

said Gamma. Waiving the normal ten-day delivery schedule, Pfautler rushed a standard unit through the shop even before the customer's written order arrived. The emergency was met—a 500-gallon glassed steel reactor was shipped—in just three days' time!

Gamma Chemical's plight points

up one of the ways you can benefit from Pfautler's policy of stocking standard glassed steel reactors. Fast delivery is only one of the savings, however. You can also cut initial costs by eliminating special engineering drawings, special parts, and material custom units require.

You get a versatile, corrosion-resistant reactor whenever you specify a standard Pfautler glassed steel vessel—resistant to all acids (except HF) and alkaline solutions up to pH 12 at 212° F. Each reactor is completely assembled and ready to ship within two weeks from receipt of your order.

Take advantage of Gamma Chemical's experience and check with Pfautler before you buy your next reactor. Contact your Pfautler representative for more information on standard reactors. Units stocked for ten-day delivery include the following capacities: 30, 50, 100, 200, 300, 500, 750, 1000 and 2000 gallons. Check the coupon for sizes in which you are interested.

Rotary seal, stuffing box interchangeable on all Pfautler reactors*

The question of when to use a mechanical rotary seal *versus* a stuffing box can resolve itself simply to this:

For a wide range of operating conditions with minimum maintenance—the use of a seal is recommended.

In most normal service of low temperature and pressure, the stuffing box is initially more economical. However, as the service becomes more severe, the rotary seal is superior to the stuffing box on all four of the following points:

1. **Chemical conditions.** The seal performs better in processes which require freedom from lubricant contamination, from vapor loss, and from contact with metal.

2. **Pressure.** When pressure ranges from 100 to 300 psi, the seal is normally required. (Special designs are rated up to 1500 psi.)

3. **Temperature.** Stuffing boxes tend to leak considerably above 350° F. By running coolant through the housing of a rotary seal, you can operate at temperatures tolerable in Pfautler reactors.

4. **Agitator speed.** Although this is less critical than other conditions, the seal is usually recommended when agitator speeds exceed 150 rpm.

Corrosioneering News

Quick facts about services and equipment available to help you reduce corrosion and processing costs.



To give you flexibility of operation, Pfaudler agitators are designed to use either seal or stuffing box on the same shaft. The shaft sleeve (upper right in above photo) is the interchangeable element. With a Hastelloy sleeve you use a stuffing box. Simply replace it with a "glassed" sleeve and you are ready for a seal. On 3" diameter agitator shafts and larger, you can make the changeover in your plant.

If you would like to study this question more thoroughly, there's considerable factual information in our Bulletin No. 938. Check coupon for copy.

*When specified at time of purchase.

One source for your complete project

Equipment for absorption, adsorption, centrifugation, crystallization, distillation, drying, evaporating, liquid extraction, filtration, heat transfer, and mixing is often interrelated in the making of a single product. In meeting such requirements, we've found a substantial demand for our project engineering services.

Many of our engineers have had long experience in many of these unit operations so that they are qualified as a group to help you set up a completely new or revamp an existing project with a minimum of time, manpower and money.

With this service, you can take advantage of this five-point program:

1. Complete project engineering and selection of proper materials of construction.
2. Corrosioneered equipment design.

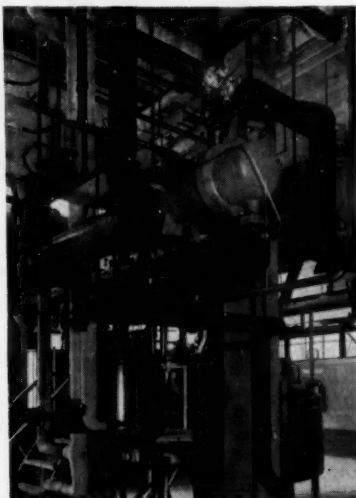
3. Certified fabrication and delivery as required.

4. Start-up and instruction of your personnel.

5. Continued interest in servicing your equipment over the years.

We've completed numerous projects for such varied processes as sulfonation, polymerization, pharmaceutical manufacturing, making resins, solvent recovery, etc. The list is growing daily, so you will find Pfaudler engineers who are experienced and reliable in your field of specialization.

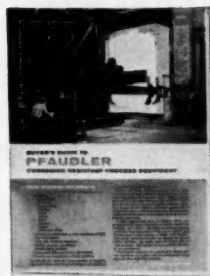
The next time you are programming a new or revamped project, consult with Pfaudler.



Typical of Pfaudler project-engineered installations is this distillation assembly for pharmaceutical extractions.

Now available 1958 BUYER'S GUIDE

on corrosion-resistant
process equipment



Bulletin 947 is a well-illustrated capsule of the complete line of Pfaudler equipment and services ready to help you fight the never-ending battle against corrosion.

For example, are you aware of the wide range of materials of construction available to you in Pfaudler equipment? Glassed steel, clad and stainless steels, certainly—but do you know the list also includes Hastelloy, nickel, Inconel, titanium, copper and zirconium among others?

Pfaudler reactors, columns and heat exchangers are commonplace, but do you know that we make such other equipment as wiped-film evaporators, desludging centrifuges, vacuum dryer-blenders, and piston fillers?

In case you're in question on the services, products, and technical aids supplied by Pfaudler—and we add to the list every year—send for a copy of Bulletin 947. The coupon makes it easy.

THE PFAUDLER CO., DEPT. CW-87, ROCHESTER 3, NEW YORK

Please send me information on standard reactors (check size) ☐ 30, ☐ 50, ☐ 100, ☐ 200, ☐ 300, ☐ 500, ☐ 750, ☐ 1000, ☐ 2000; ☐ Rotary seals and stuffing boxes, Bulletin 938; ☐ Buyer's Guide, Bulletin 947.

Name.....

Title.....

Company.....

Address.....

City..... Zone..... State.....

Consider ALL these factors...

when you have
a solids-liquids
separating
problem



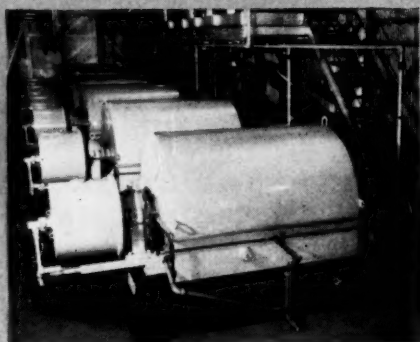
CAKE DRYNESS
FILTRATE CLARITY
SOLIDS VOLUME
LIQUID VOLUME
FEED CONSISTENCY
PARTICLE SIZE
TEMPERATURE
SOLIDS WASH
LIQUID VOLATILITY
CONTINUOUS FLOW
CAPACITY

it all adds up to this:



The right filtration equipment for you is the one that comes closest to meeting your particular combination of factors.

Based on the experience of hundreds upon hundreds of installations, the one most likely to cover your requirements is the



BIRD CONTINUOUS CENTRIFUGAL FILTER

But you don't have to take anybody's word for that. Submit a pilot size sample of *your* feed slurry for actual running test at the Bird Research and Development Center. All factors and all types of filtration will be considered before a recommendation is made. Then, whether it's a Bird Centrifugal Filter or some other type, you'll be absolutely certain of the one best filter for the job *in advance* of your equipment investment.

BIRD

MACHINE COMPANY

Washington

Newsletter

CHEMICAL WEEK

August 17, 1957

How free are chemical prices to vary with market conditions?

This question will become more important in the next three or four months as Congressional trust-busters get some new ammunition. A study on the fluctuation in price of nearly 2,000 commodities, being prepared by the Dept. of Commerce for the joint Senate-House Economic Committee, may be just what Sen. Estes Kefauver (D., Tenn.) wants to bolster his Senate Antimonopoly Subcommittee's "administered price" hearings that began last week with the testimony, on steel prices, of U.S. Steel Chairman Roger Blough. Kefauver and his staff hope to show that in highly concentrated industries prices are administered (i.e., set) in such a way that competition is negligible.

The detailed price history of 227 chemical commodities, including 56 organic chemicals, 46 inorganics and 38 drugs, are being charted. The plan is to place these chemical prices, and the 1,700 other industrial prices, on a price-fluctuation scale. At one end of the scale: commodities where 100 price changes/month are the rule; at the other, those with one change or less/year. The implication that some Congressional groups may read into the data: the first group will be commodities with "free" prices; the latter, those whose prices are "administered."

The place on the spectrum of chemical prices, once the study is completed, may well determine whether chemical executives will join their counterparts in other industries in appearing in Kefauver's inquisitorial spotlight.

"Administered prices" will be related to antitrust laws, too.

Kefauver will want to make a case that existing antitrust laws are not broad enough to prevent such practices.

The antitrust relief bill has little chance of going anywhere in Congress. Though the bill, which would extend retroactive tax relief to corporations forced to dispose of property under terms of antitrust consent decrees or court orders, has been okayed by the tax-writing House Ways & Means Committee, the approval was made without benefit of hearings. And there is powerful opposition to the measure both in Congress and in the executive branch of government. For one thing, it's known that the Treasury has informed the committee it is opposed to the bill.

The bill says, in essence, that a company forced to sell property on antitrust grounds after Jan. 1, '56, need pay no tax on profits realized from the sale—if the proceeds were reinvested in substantially similar property.

Critics object both to revenue losses and to the vagueness of the bill's language. It doesn't specify, for example, what would pass for sub-

Washington Newsletter

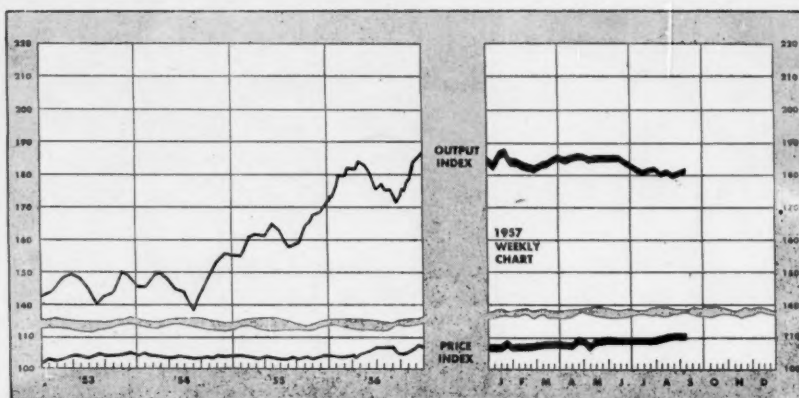
(Continued)

stantially similar property or, for that matter, whether property means stock, physical assets or both.

Such legislation, if enacted, could conceivably cover any eventual disposal of General Motors stock by Du Pont—but not if property is held to mean only physical assets. And this question would be raised: Would Du Pont, to meet the reinvestment requirement, have to put proceeds of the sale into stocks of some other auto company?

The Administration is coming in for fresh criticism over its lead and zinc excise tax tariff proposals. Members of the House Ways & Means Committee chided the Administration for not trying out the statutory avenues for tariff relief—the Tariff Commission and Office of Defense Mobilization—before coming to Congress. Administration spokesmen defended the new import tax plan on grounds that the sliding scale duties would bring quicker relief.

Tax legislation will be considered next year. The Democrats have decided officially to make a try at reducing personal income tax rates in the 1958 election year. It's doubtful that the 52% corporate income rate will be considered in any reduction bill, but in the end, perhaps a point or two might be shaved. The Administration would oppose any bill that had no relief to business at the time individual relief was being voted.



Business Indicators

Chemical Week output index (1947-49=100)
Chemical Week wholesale price index (1947=100) ..
Stock price index of 11 chemical companies (Standard
& Poor's Corp.)

Latest Week	Preceding Week	Year Ago
181.0	180.5	174.0
110.6	110.5	105.6
45.01	46.04	49.83

MONTHLY Employment (thousands)

All manufacturing
Nondurable goods
Chemicals and allied products

Latest Month	Preceding Month	Year Ago
16,826	16,748	16,825
6,947	6,868	7,025
833	838	828



chemicals
at work



champion fruit and vegetable peeler... CAUSTIC SODA!

Food is a giant industry. In the short span of seventeen years, the national retail expenditures for food have jumped from \$15 billion in 1939 to over \$71 billion in 1956... and they're still growing fast!

Obviously, in the processing of large volumes of food, factors such as efficiency, speed and economy play a spotlight role as they do in any large business. The best way to skin a potato, tomato, peach or pepper is vitally important. Versatile caustic soda provides the answer—again.

Fruits or vegetables to be de-skinned

are placed on a moving conveyor, then dunked in a hot caustic solution which immediately attacks the skin. The resulting action might be termed "controlled surface cooking" because only the skin is cooked.

A light water rinse washes most of the caustic away, then high velocity water sprays wash away the loosened skin or peel as well as any trace of remaining caustic.

This operation is not only speedy, but unlike manual or mechanical peeling, there is little, if any, loss of the fruit or vegetable.

Caustic soda is also used extensively in the production of chemicals, rayon and film, petroleum, pulp and paper, textiles, soap and cleansers, rubber, vegetable oils, metals and other goods. This "workhorse" is a basic Columbia-Southern product, as are chlorine, soda ash and related chemicals.

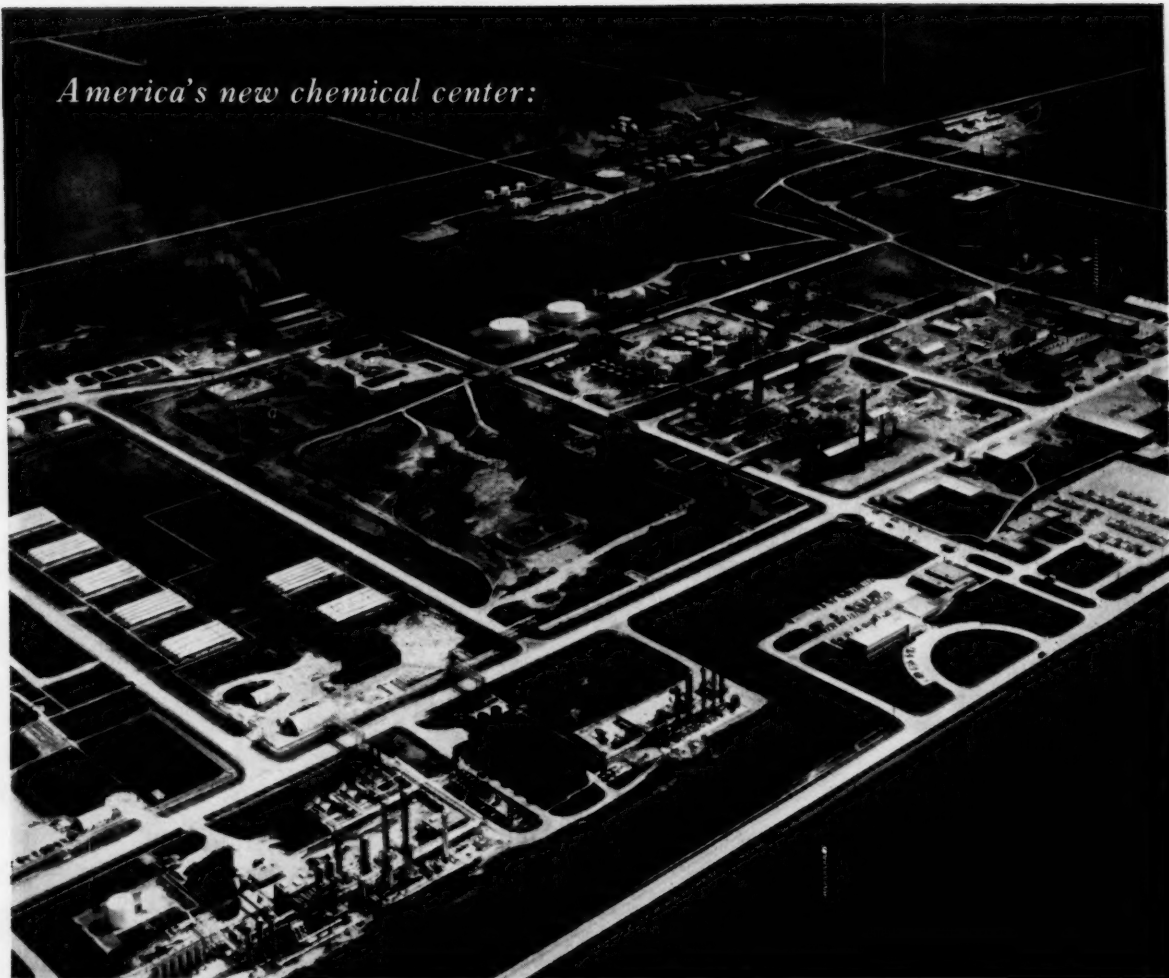
COLUMBIA-SOUTHERN CHEMICAL CORPORATION

SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER • PITTSBURGH 22 • PENNSYLVANIA

CHLORINE, ALKALIES, AND RELATED CHEMICALS
OFFICES IN PRINCIPAL CITIES

IN CANADA: Standard Chemical Limited and its
Commercial Chemicals Division

America's new chemical center:



Your assurance of long-term bulk supplies of petro-chemicals

Petro's giant \$75,000,000 chemical center at Tuscola, Illinois, is now one of industry's most important sources of bulk petro-chemicals.

With production stepped up to meet growing demands, 500,000,000 cubic feet of natural gas daily are now processed to extract ethane, propane, butane and natural gasoline. Further processing produces ethylene, ethyl chloride, ethyl alcohol, ether and polyethylene. Adjacent U.S.I. plants supply ammonia, sulfuric acid and phos-

phoric acid, and will start production of sebacic acid isomers shortly. These plants form part of Petro's completely integrated chemical complex.

Mid-continent-location and good transportation facilities make Tuscola a logical chemical center to serve much of America's industry. Sites available in the area offer attractive opportunities for other industries to establish plants which can take advantage of Petro's facilities.

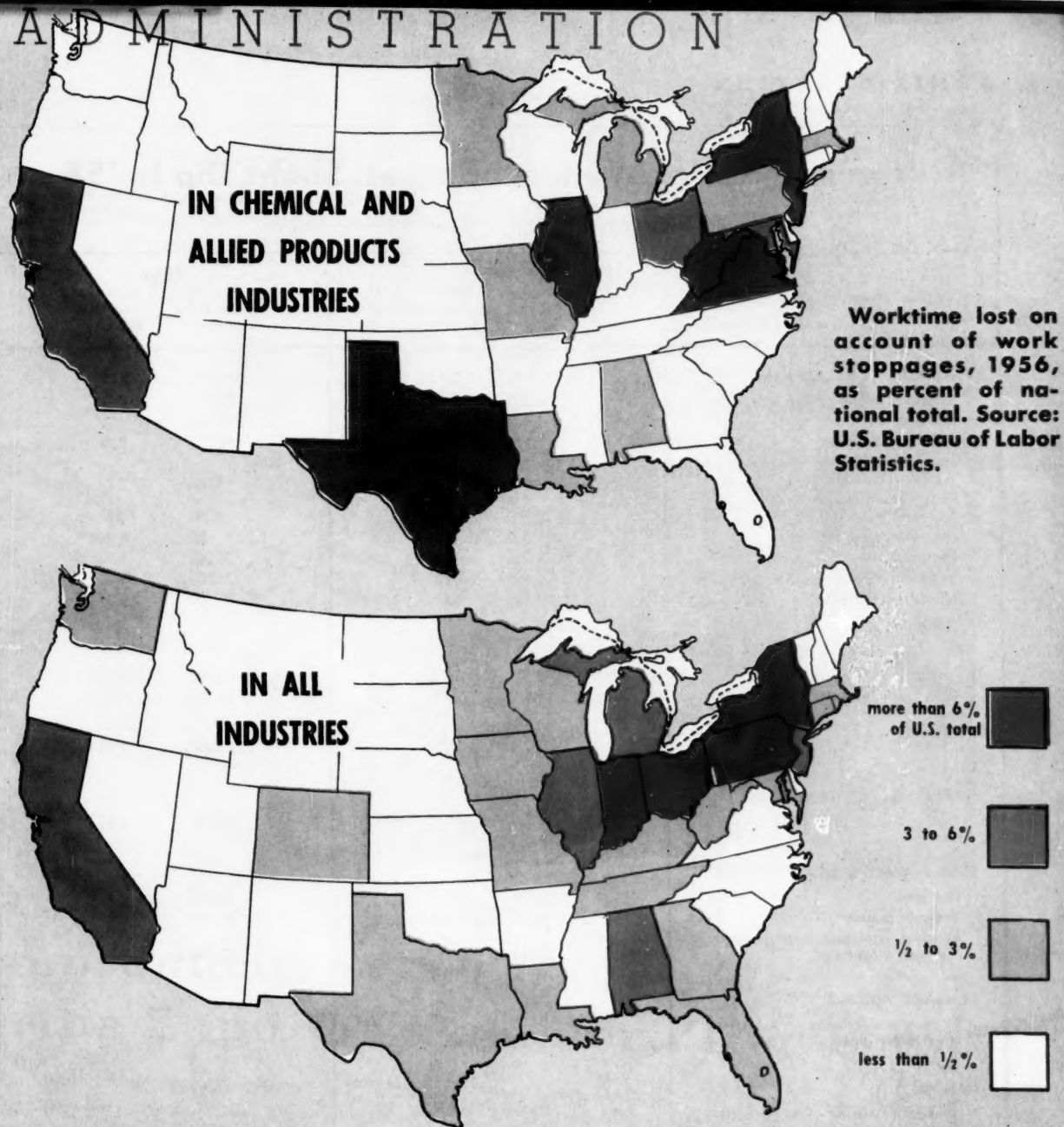
Is your company one that Petro can serve?

NATIONAL PETRO-CHEMICALS

C O R P O R A T I O N

A joint enterprise of National Distillers and Chemical Corporation and Panhandle Eastern Pipeline Company

99 PARK AVENUE, NEW YORK 16, N. Y.



Chemical Strikes Counter the U.S. Trend

In the matter of work stoppages, at least, chemical labor unions aren't hewing to the pattern set by U. S. organized labor as a whole. That's the striking fact made clear this week by government figures.

Up to July 1, the 1957 all-industry strike total was down by more than 41% from the worktime-lost figure for the first half of '56; but chemical strike activity is up this year by an estimated 12%.

On the other hand, the '56 situation

was just the reverse, with a rise in the all-industry strike total and a drop in chemical strikes. More precisely, last year's work-stoppage data—detailed in a new report from the U. S. Bureau of Labor Statistics—show that from '55 to '56, the number of man-days of worktime lost on account of work stoppages in all industries climbed 17.3%; whereas in chemicals and allied products, the time loss sagged 37.1%.

This year, in chemicals and in other

process industries, there's a definitely more pugnacious tone in collective bargaining. It can be seen in the five-plant strike by Oil, Chemical & Atomic Workers (AFL-CIO) against Union Carbide's Linde Co. division (*CW*, May 18, pp. 9 and 22); in the 65-plant strike by United Cement, Lime & Gypsum Workers (AFL-CIO) against numerous cement companies (*CW Business Newsletter*, Aug. 3); and in two strikes still unsettled at the moment of writing: the May 1 walkout by

Process Industry Work Stoppages: Slight Dip In '56

(Based on work-stoppage data by U.S. Bureau of Labor Statistics)

Industry Group	1955		1956	
	Man-days worktime lost	Percent of estimated worktime	Man-days worktime lost	Percent of estimated worktime
CHEMICALS & ALLIED PRODUCTS	634,000	0.31%	399,000	0.19%
Industrial inorganic chemicals	280,000	1.01	84,800	0.30
Industrial organic chemicals	172,000	0.21	187,000	0.23
Drugs and medicines	6,480	0.03	46,700	0.21
Soap, glycerine, cleaning and polishing preparations, etc.	62,000	0.55	5,080	0.04
Paint, varnish, lacquer, enamel, inorganic pigments, etc.	26,700	0.15	4,290	0.02
Gum and wood chemicals	640	0.025	80	0.003
Fertilizers	69,600	0.67	25,900	0.25
Vegetable and animal oils and fats	6,560	0.06	29,000	0.27
Miscellaneous chemicals	9,940	0.04	15,600	0.07
PRODUCTS OF PETROLEUM & COAL				
Petroleum refining	43,400	0.09	90,400	0.18
Coke and by-products	420	0.03	56,100	0.36
RUBBER PRODUCTS	490,000	0.69	580,000	0.83
PAPER & ALLIED PRODUCTS				
Pulp, paper and paperboard mills	134,000	0.19	184,000	0.25
STONE, CLAY & GLASS PRODUCTS				
Flat glass	77,900	0.84	40,600	0.43
Hydraulic cement	4,460	0.04	68,400	0.61
Abrasives, asbestos, other nonmetallic mineral products	22,800	0.11	53,500	0.25
PRIMARY METALS				
Smelting and refining of nonferrous metals and alloys	305,100	1.63	228,400	1.16
MINING				
Nonmetallic mining (lime, salt, clay, soda ash, potash, phosphate rock, etc.)	164,000	0.61	74,800	0.25
PROCESS INDUSTRY TOTALS	1,870,168	0.39	1,775,200	0.37

about 160 American Cyanamid laboratory employees, represented by International Chemical Workers Union (AFL-CIO), at Stamford, Conn.; and the July 9 exit by about 2,250 Ethyl Corp. employees, represented by District 50, United Mine Workers, at Baton Rouge, La.

Upturn in South: That Baton Rouge strike calls attention to the increased belligerence of process-industry labor unions in the South. In '55, this

trend showed up most prominently in the more-or-less concurrent strikes by International Chemical Workers Union (AFL-CIO) at eight phosphate mining and processing plants in Florida.

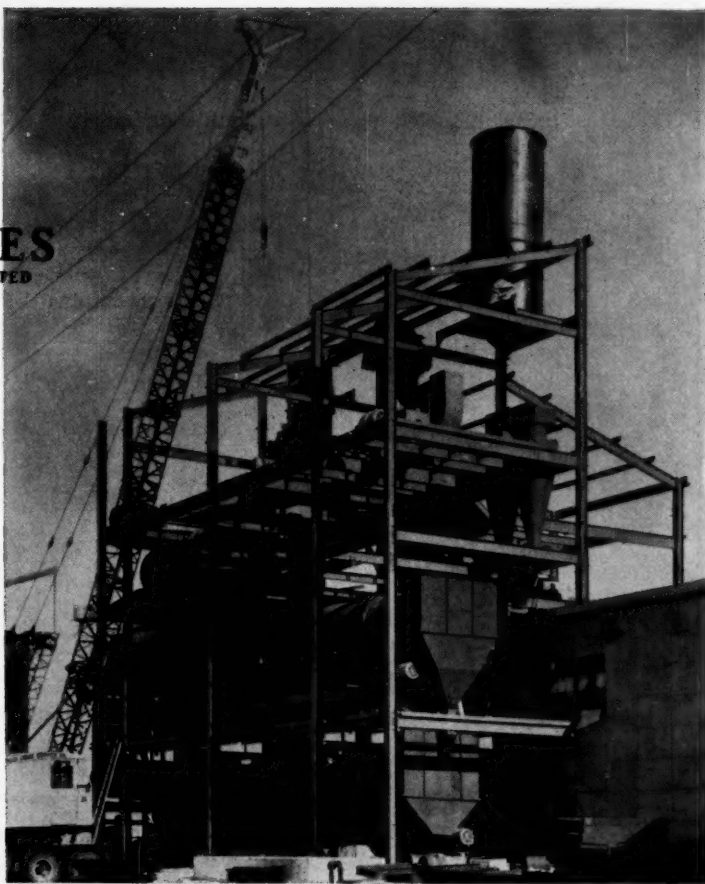
During '56, this trend stood out in BLS strike figures for the "chemicals and allied products" classification. In 10 Southern and border states, the '55 worktime lost on account of work stoppages was 181,760 man-days, or

29.6% of the 48-state total for this industrial category; but in '56, those same 10 states accounted for 211,220 man-days, or 54.2% of the industry's time loss. Michigan had the most lamentable strike record in this industrial grouping in '55, with 161,000 man-days lost; last year, it was Texas, with 116,000 man-days lost.

Similarly, this year Dixie appears to be getting somewhat more than its share of process industry strife. Exam-

Fertilizer production unit of
Land O'Lakes Creameries'
Minneapolis plant, before
siding was applied

LAND O'LAKES
CREAMERIES INCORPORATED



from an idea in June to productive operation in January —the Land O'Lakes Fertilizer Plant

In the opinion of several experienced fertilizer producers, time was too short to start from scratch in June 1955 and have a new fertilizer plant in operation to meet the 1956 market demands.

But Land O'Lakes management decided to flash the go ahead sign. In July Blaw-Knox accepted the challenge—to engineer, construct, and install a TVA continuous ammoniation and granulation system in time to produce for the 1956 fertilizer season.

Engineering was well under way in August. Ground broken in September. Structure housed by November. Final installations finished in December.

Operation started in early January. Well over 30,000 tons of granular fertilizer produced and sold during spring season of 1956.

That was the tight schedule maintained by Blaw-Knox—in spite of heavy snowfalls and temperatures that dropped at times to 30° below zero.

This was, of course, an unusual assignment. But it demonstrates the ability of Blaw-Knox to handle tough jobs. So when you are considering a modernization, an expansion or a new plant program, we would welcome the opportunity to study your project with you and submit our recommendations.



BLAW-KNOX COMPANY

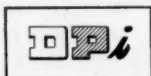
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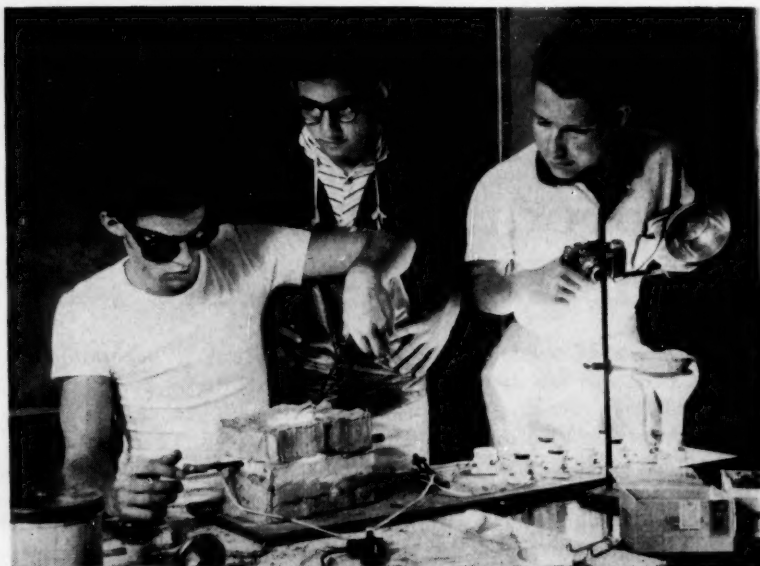
ples: ICWU's more-than-two-month strike at Morganton, N. C., against Great Lakes Carbon; OCAW's disputes with Texas-U.S. Chemical and Crown Central Petroleum at Port Neches and Pasadena, Tex.; and three West Virginia spats between District 50 and Food Machinery and Chemical—two stoppages at the Westvaco division plant in South Charleston and one at the Ohio-Apex plant in Nitro.

Fewer, Shorter Walkouts: In the field of industrial chemicals, there was a moderate downturn in number of work stoppages (53 in '55, 45 in '56) and a big drop-off in time lost (452,000 man-days in '55, only 271,800 in '56), but a slight increase in number of workers involved (26,470 in '55 and 27,810 in '56).

By and large, however, chemical companies were less affected by the relatively few direct strikes against them in '56 than by the indirect action of strikes in other industries. For instance, a number of chemical expan-

sion projects were delayed and/or made more expensive by large-scale construction industry strikes last year in Ohio, Louisiana and California; the 16-state strike by the American Flint Glass Workers Union shut down a large section of a chemicals-consuming industry for 28 days; and the United Steelworkers' strikes against major steel and aluminum producers not only helped establish a higher wage pattern for chemical and other industrial employers but also helped set the stage for higher prices for equipment.

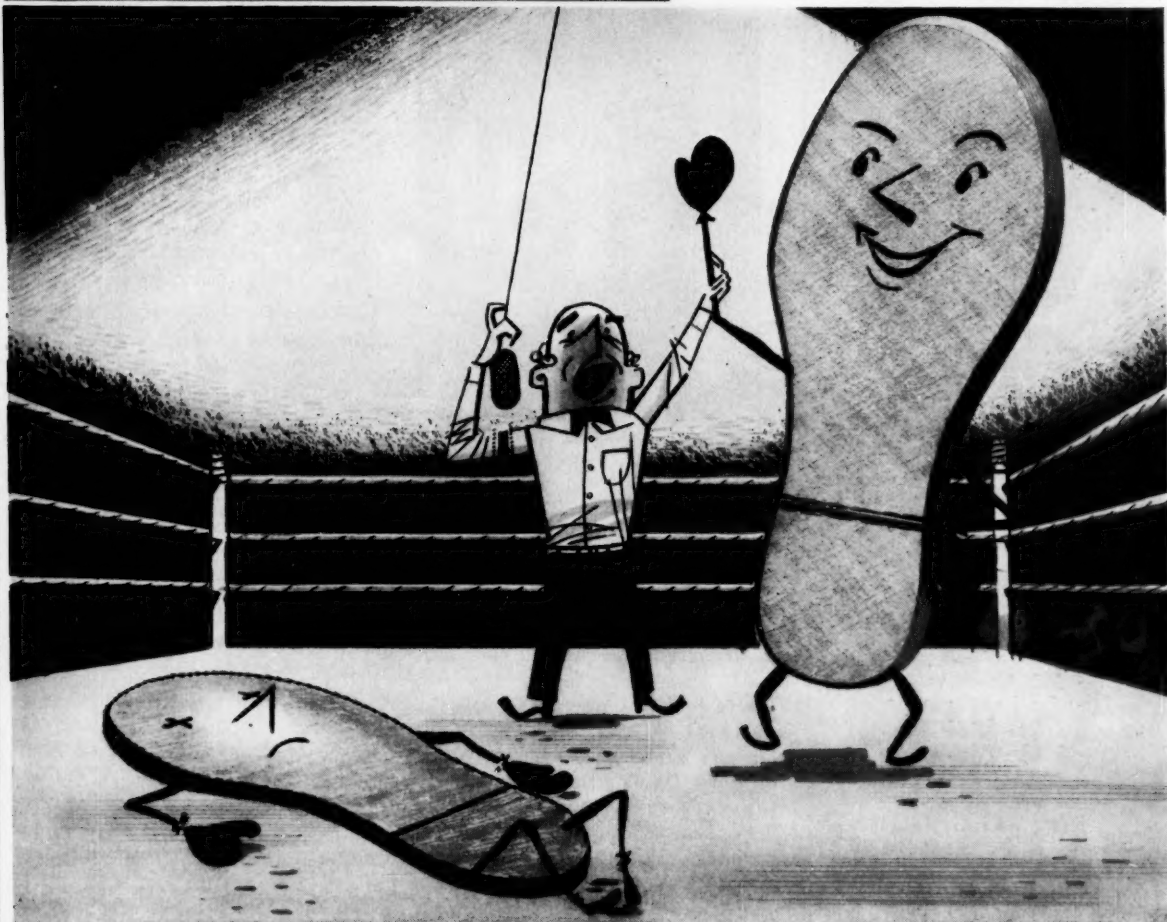
For the future, there's no reason to expect any sharp fall-off in strikes by process industry labor unions. Both OCAW and ICWU, at their respective conventions in August and October, will be considering plans to increase their "defense funds," but this doesn't necessarily indicate an intention to strike more often; in part, at least, these parallel moves are merely recognition of the higher cost of financing strikes these days.



Summer Camp for Future Scientists

Even during summer vacation, chemical companies in Wilmington, Del., are doing something to bolster the country's future supply of engineers and scientists. In cooperation with the Delaware Section of the American Chemical Society, these firms have been sponsoring a four-

week summer science day-camp, designed to stimulate interest in science among promising high school students like William Harmon, William Nicholas and James Teeter (above). The program includes classroom studies, laboratory sessions and overnight field trips.



Beats the hide off other sole materials

NAUGATUCK RESEARCH has just developed a way of compounding PARACRIL rubber with other inexpensive ingredients to produce a better-than-ever shoe sole material that:

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- retains light color indefinitely
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*—of present high-grade, oil-resistant shoe sole materials, based on Bur. of Standards abrasion and Ross flexing values.



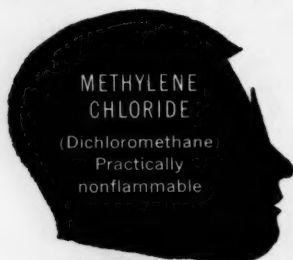
Naugatuck Chemical

Division of United States Rubber Company, Naugatuck, Connecticut

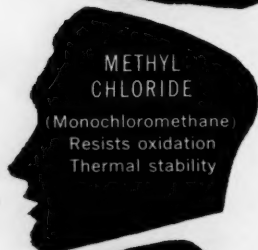


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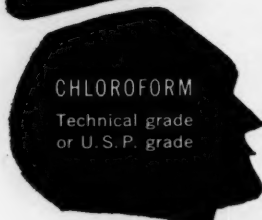
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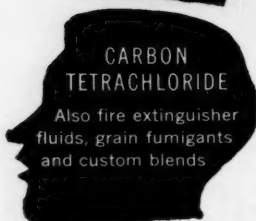
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Practically
nonflammable



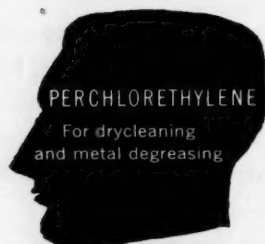
**METHYL
CHLORIDE**
(Monochloromethane)
Resists oxidation
Thermal stability



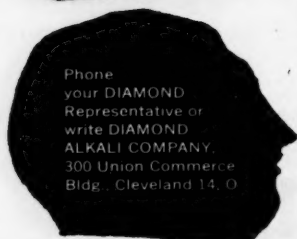
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Technical grade
or U. S. P. grade



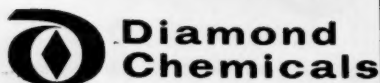
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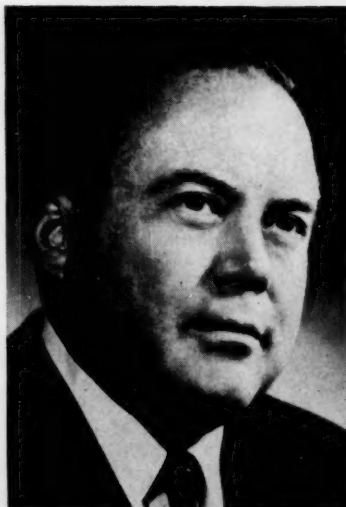


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ADMINISTRATION



Reynolds: In liability-to-industry lawsuit, he wins order for rehearing.

LEGAL

Reynolds Rehearing: The U.S. Court of Appeals in San Francisco has granted to Reynolds Metals Co. (Richmond, Va.) a rehearing of the air pollution case involving its Troutdale, Ore., aluminum-reduction plant. An Oregon farm family contended they had suffered personal injuries from fluorine-containing fumes emitted by the plant (*CW*, Dec. 3, '55, p. 34). The higher court's ruling is a tentative victory for the company's president, Richard Reynolds, Jr., who has been fighting for a reversal of the district-court decision awarding the family a judgment for \$38,290. Reynolds argues that the earlier decision has imposed an "unprecedented liability" on the entire aluminum industry by branding the making of aluminum "an inherently dangerous activity in all circumstances, regardless of whether it is in fact dangerous."

Suit Shifts Scenes: The citric-acid patent litigation between Ferment-Acid Corp. (New York) and Miles Laboratories (Elkhart, Ind.) is being transferred from the federal court in New York to the U.S. district court for the Northern district of Indiana, close to Miles' home base. Miles had requested the transfer order. Ferment-Acid is charging infringement of its patent (U.S. 2,353,771) on a method of producing citric acid by fermentation of sucrose.

KEY CHANGES

Dr. Hal G. Johnson, to vice-president, Vick Chemical (New York).

George J. Zimmerman, to controller; and **Gilbert J. Stewart**, to treasurer, The Carborundum Co. (Niagara Falls, N.Y.).

Willard A. Ashburn, to president and chief executive officer, Smith-Douglass Co. (Norfolk, Va.).

Harold D. McGowan, to executive vice-president, Shea Chemical Corp. (Jeffersonville, Ind.).

Gerald J. Ray, to president, Borden Chemical Co. (Canada) Ltd. (Toronto).

Joseph W. Mackenzie, to secretary, Plumb Chemical Corp. (Philadelphia).

Martin von Zamft and **H. H. Darsky**, to directors; and **Joseph J. Hitov**, to assistant to the president, Brown-Allen Chemicals, Inc. (Staten Island, N.Y.).

William F. Laporte, to director, American Home Products Corp. (New York).

Fred A. Brown, to president, Clox Chemical Co. (Oakland, Calif.) subsidiary of Procter & Gamble Co.

Laurance S. Rockefeller and **Robert W. Purcell**, to directors, Vitro Corp. of America (New York).

W. P. Metcalf, to assistant purchasing agent, Air Reduction Co. (New York).

Kenneth A. Bonham, to president, Whitehall Pharmacal Co., subsidiary of American Home Products Corp. (New York).

William J. Burke, to director of sales, Texas-U.S. Chemical Co. (New York).

David H. Bradford, Jr., to vice-president, Mid-South Chemical Corp. (Memphis, Tenn.).

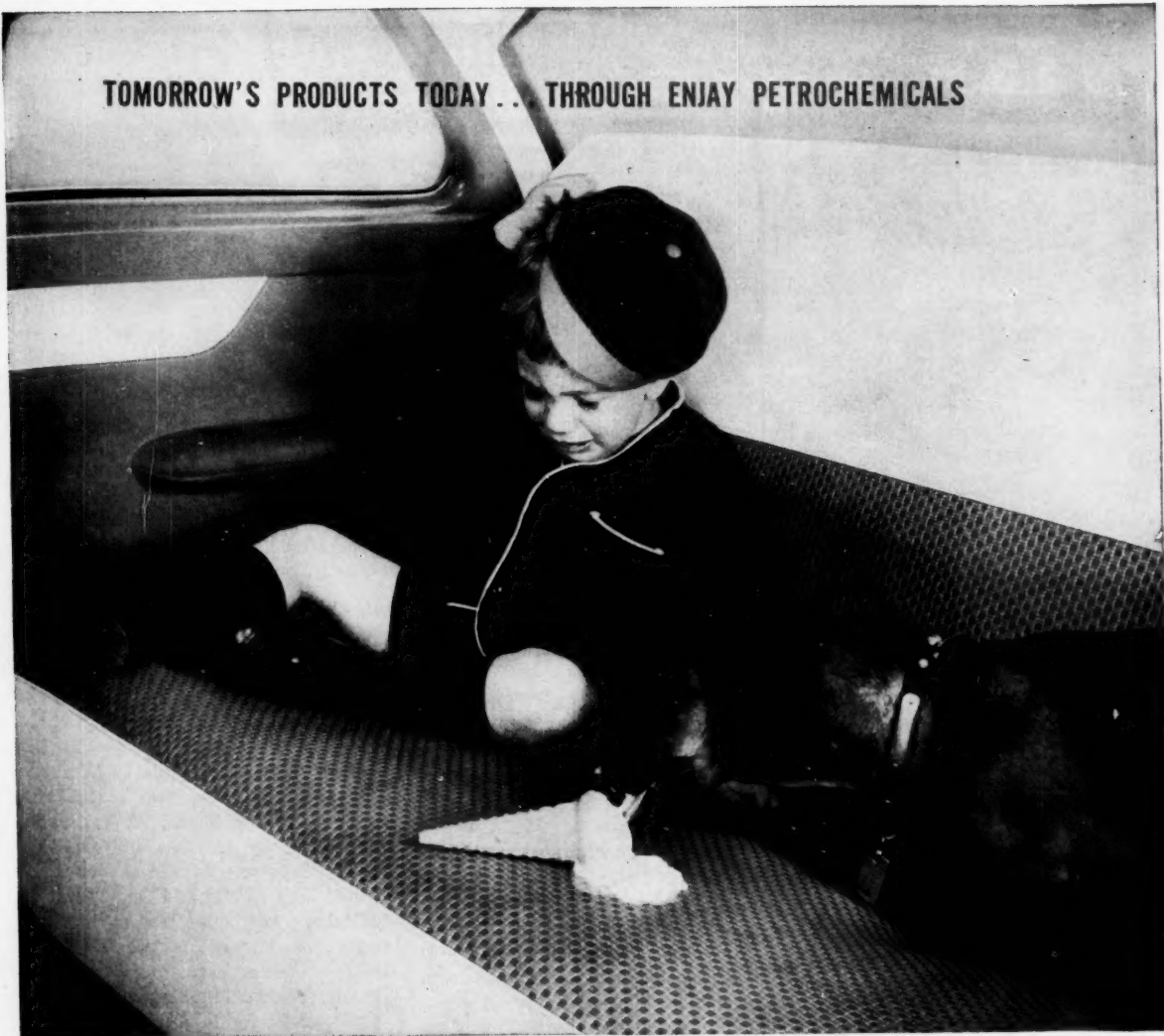
RETIRED

Arthur Vining Davis, board chairman since 1928 and director since 1892, Aluminum Co. of America.

DIED

Louis Neuberg, 65, vice-president in charge of sales, Chemical Divisions, Food Machinery and Chemical Corp. (New York).

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WIDE WORLD

Kennedy's Charges*: Logical parallel, or threat to chemical hauling.

LABOR

Transport Union Alliance: Teamster leader Jimmy Hoffa's plan for an alliance of all U.S. labor unions in the transportation field is being criticized on the grounds that it would make for a dangerous concentration of power.

Yet, a Senate investigation recently brought out evidence that the Teamsters' union already has a grip on transportation of chemicals, drugs and numerous other industrial products in various communities (see photo, above). From Hoffa's standpoint, the proposed transport union council would be nothing more than a logical parallel to the existing departmental units within AFL-CIO: Building & Construction Trades, Industrial Unions, Maritime Trades, Metal Trades, Railway Employees, Service Trades, and Government Employees. But to chemical process management—which relies heavily on low-cost, large-scale movement of bulk commodities via competitive carriers—the Hoffa scheme suggests a concentration of bargaining power that could sharply increase freight costs and decrease a shipper's freedom to use alternative carriers.

Summer Slowdown: Both of the

*In Washington, chief counsel Robert Kennedy, of the Senate's rackets investigating committee, outlines the alleged plan by Teamster Vice-President Hoffa to gain control over transportation in Port of New York and along the entire Eastern seaboard.

AFL-CIO's chemical labor unions seem to be experiencing a summer slowdown in their organizing campaigns.

International Chemical Workers Union has suffered two recent setbacks. At Long Reach, W. Va., plant employees of Union Carbide's Silicones Division—who last year rejected both ICWU and Oil, Chemical & Atomic Workers—have again turned down unionism. Workers in the plant's utilities department cast two ballots for Operating Engineers (AFL-CIO), three for ICWU, and five for "no union"; among all other workers, the vote was 32 for ICWU, 57 for no union. And at South Norfolk, Va., International Longshoremen's Assn. (Ind.) defeated ICWU, 22 to 15, in an election for production and maintenance employees at the Money Point plant of Robertson Chemical Corp. However, ICWU won two elections: At Arnold, Hoffman & Co. (Cincinnati), 33 to 17; and at G. Barr & Co. (Los Angeles), 17 to 3.

OCAW's West Virginia organizing drive may have lost steam because of the recent wage increases at two principal target plants (*CW Business Newsletter*, Aug. 10). But, OCAW recently won bargaining rights for two smaller units. At Grand Junction, Colo., American Gilsonite's refinery employees voted, 53 to 34, for OCAW representation; and at New Brunswick, N.Y., employees of Rhodia, Inc., gave OCAW a 25-to-22 endorsement.

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Stanzal, the low-foaming detergent for automatic washers, includes CMC in the formulation to produce what the manufacturer terms "just right suds" for complete washing and easy rinsing. The unique dirt-suspending properties of Hercules CMC are utilized in Stanzal to float-away dirt particles loosened by this controlled suds detergent. When CMC is included, dirt is always washed down the drain; never redeposited on clothes.

More and more manufacturers of both commercial and home laundry products are using economical Hercules CMC to increase customer satisfaction. Perhaps CMC can improve your product. Write to Hercules for complete technical information and a testing sample.

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Clayton Parcels is in charge of Ansul's glycol dimethyl ether plant, the only one in the United States. His plant is running at full capacity because these unique solvents are playing a vital role in many new chemical processes.

Take the exciting things being done with metal hydrides, for instance. Sodium borohydride required a non-reactive solvent, so Ansul Ether 141 (dimethyl ether of diethylene glycol) was suggested. Now sodium borohydride can be used effectively as a reducing

agent for aldehydes, ketones, acid chlorides, acid anhydrides—and most recently—in ester reductions.

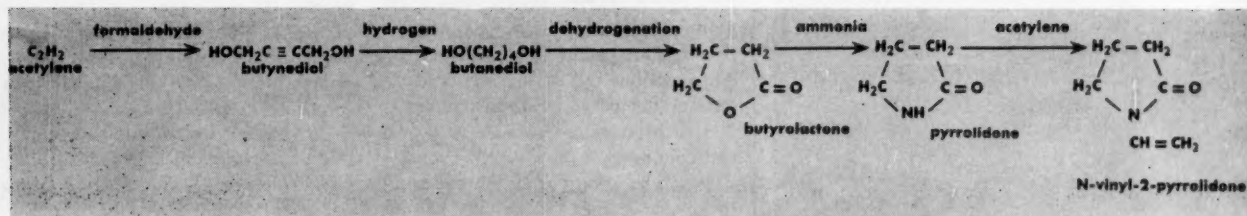
Mr. Parcels would like to send you our new 27-page technical bulletin on the solubility and stability of commercially available hydrides in Ansul glycol dimethyl ethers. For that matter, he'd be happy to talk with you about any chemical problems that might require a specialized solvent. Write Clayton Parcels, **ANSUL CHEMICAL COMPANY, MARINETTE, WISCONSIN.**



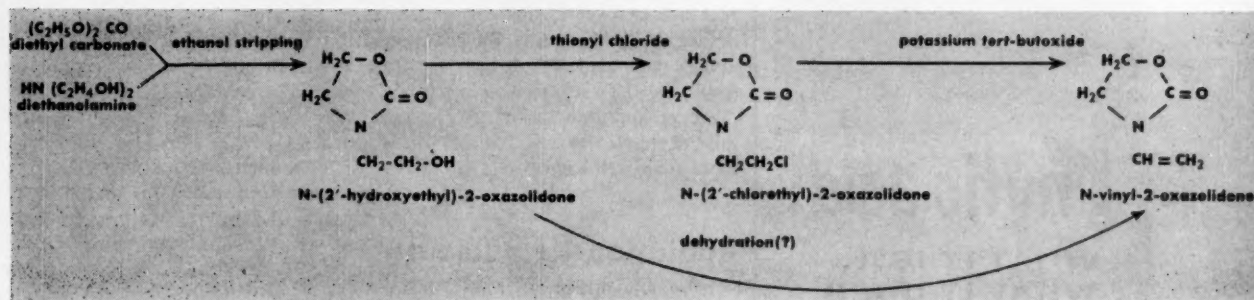
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RESEARCH

N-vinyl-2-pyrrolidone is made by five-step, Reppe-chemistry process



N-vinyl-2-oxazolidone is made by a simpler three-step process, requires no acetylene



Budding Competition for PVP's Markets?

For a combination of reasons, there's fresh optimism at General Aniline & Film this week over the outlook for copolymers and homopolymers of N-2-vinylpyrrolidone.

Technological troubles that have beset GAF's 30-million-lbs./year Calvert City plant, Ky.—which uses the process outlined above—(*CW Technology Newsletter*, March 23), are now expected to be cleared up by November. And there's a firm market shaping up for polyvinylpyrrolidone (PVP) as an iodine detoxifier (in antiseptics) and in hair sprays (as a copolymer with vinyl acetate).

Other applications are coming along, too, bode well for the compound's commercial future. Large-volume possibilities include lube-oil additives (e.g., as a copolymer with lauryl methacrylate) and fibers. (PVP is the dye-receptive ingredient in Dow's acrylic fiber, Zefran.)

GAF is looking at analogs of N-2-vinylpyrrolidone, in the hope of developing better or cheaper polymers for the above-mentioned uses. And GAF is not alone in this quest. One possible new challenger is N-vinyl-2-oxazolidone, subject of research by both American Cyanamid and Germany's Badische Anilin- & Soda-Fabrik

AG., (Ludwigshafen). Both have worked up syntheses.

Cyanamid's process (*above*), like Badische's, is strictly a laboratory technique. But its discoverer, Erhart Drechsel, now with Escambia Bay Chemical Corp. (New York), thinks there's a chance that further work might take it out of this category.

New raw material (e.g., ethylene carbonate) and direct dehydration (*see reaction chart*)—a step that is still conjectural—could lower the product's currently prohibitive cost, Drechsel believes. The synthesis, even as it stands, is simple, avoids the tricky acetylene chemistry that has caused some of GAF's headaches with PVP.

Badische's synthesis, covered in German patent application B-34032 IVb/12p3 (published March 29, '56), involves the treatment of the chlorethyl ester of carbamic acid with HCl-binding reagents (e.g., sodium methylate) in the presence of inert solvent (e.g., tetrahydrofuran).

Badische's W. Arend and H. G. Trieschmann report good yields, say the carbamic-ester starting material is cheap and easily obtained. The latter can be made, for example, by treating ethylenechlorhydrin with phosgene and chlorethylamine hydrochloride.

A cheap synthesis, of course, could do a lot toward enhancing vinyloxa-zolidone's commercial prospects. Right now, it can't be made for anywhere near PVP's 50-75¢/lb. But more applications research will be necessary.

Cyanamid, whose interest in the compound stems from its plastics and resins research, isn't currently planning further work with it. But a patent (U.S. 2,786,043), assigned to Cyanamid by Walter Schuller and E. Kerle, covers poly-N-vinyl-2-oxazolidone plasticized acrylonitrile compositions.

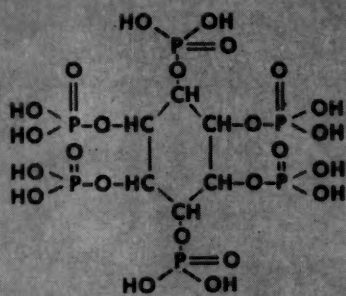
Sample claim (No. 5): "A plasticized composition comprising a polymerization product containing in the polymer molecules an average of at least 85% by weight of acrylonitrile, said polymerization product being plasticized with a plasticizing amount not substantially exceeding about 25%, by weight of the composition, of a plasticizer comprising a polymer of N-vinyl-2-oxazolidone having an average molecular weight of at least 400."

Homopolymeric N-vinyl-2-oxazolidone can be used either alone, the patent states, or in combination with other known plasticizers as water-soluble salts—e.g., chlorides, bromides, thiocyanates.

What's more, the monomer is also

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Phytic acid:

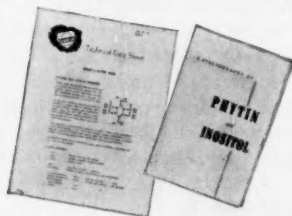
WHAT IT IS... WHAT IT DOES

Phytic Acid, the hexaphosphoric acid ester of inositol, is a relatively strong acid composed of twelve acidic hydrogen groups. Its proposed structural formula, shown above, indicates a wide range of applications in a number of different fields.

Available for the first time in commercial quantities, Phytic Acid's indicated applications are:

- Chelating or sequestering heavy metals.
- Facilitating plating, improving adhesion properties of metal for application of protective coatings.
- Inhibits rusting, improves appearance of metal closures on glass-packed foods.
- As an excellent starting material for certain pharmaceutical derivatives.
- In photographic emulsions, for low fogging qualities, yet increased sensitivity.
- As an additive to various types of paints and coatings to inhibit corrosion, improve color, promote better adhesion to metal surfaces.
- It may be useful in detergent applications.

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RESEARCH

said to be copolymerizable with vinyl compounds and alkyd resins, a feature that opens appreciably wider vistas than plasticizing offers. Cyanamid's new Indian patent (54487, Dec. 26, '56) mentions use of the monomer in unsaturated polyester resins, discloses that such resins are possible adhesives and coatings.

It will be a long time, however, until any newcomer reaches the heavily researched status of PVP. PVP toxicity studies, alone, are taking years. One recently completed GAF test on rats took two years; another new one, on dogs, will take a year. By that time, still new contenders may be vying for PVP's jobs. To researchers in the lab, however, the time and effort spent in this neophyte chemical field seems more than well spent.

Radiation Nematocide

If experiments at the University of Florida prove successful, home gardeners, nurserymen and farmers may have a nuclear ally in their fight against microscopic worms that cause millions of dollars worth of crop damage each year.

R. E. Esser, assistant phytonematologist at Florida's state plant board laboratories (Gainesville, Fla.), and A. L. Dryden, at the College of Engineering's nuclear laboratories, are now utilizing radiation in an attempt to kill or sterilize the worms (nemas), or at least produce damaging mutations.



Nematode: Control in sight?

They are using immature Southern root-knot nemas, which attack tomato plants. Larval-stage organisms are placed in water and exposed to one millicurie of radium for six to 48 hours. Nemas are thereby subjected to a dose radiation ranging from 3.14 to 25.1 roentgens (recommended maximum for humans engaged in long-range nuclear research is five roentgens/year).

No apparent changes have occurred in the larvae after exposure. But to check for sterilizations and mutations in offspring, they are placed around the roots of disease-free tomato plants in sterile soil. Controls include untreated larvae placed in similar tomato plants and tomato plants without nemas.

Plutonium, too, is being tried as a source of radiation, and eventual use of the university's new cobalt-60 source is planned. Assuming satisfactory results in these initial experiments, the plan is to conduct studies with egg masses from single female nemas, and thereby obtain more exact results. Radiation will be increased, too, if currently used doses prove ineffective.

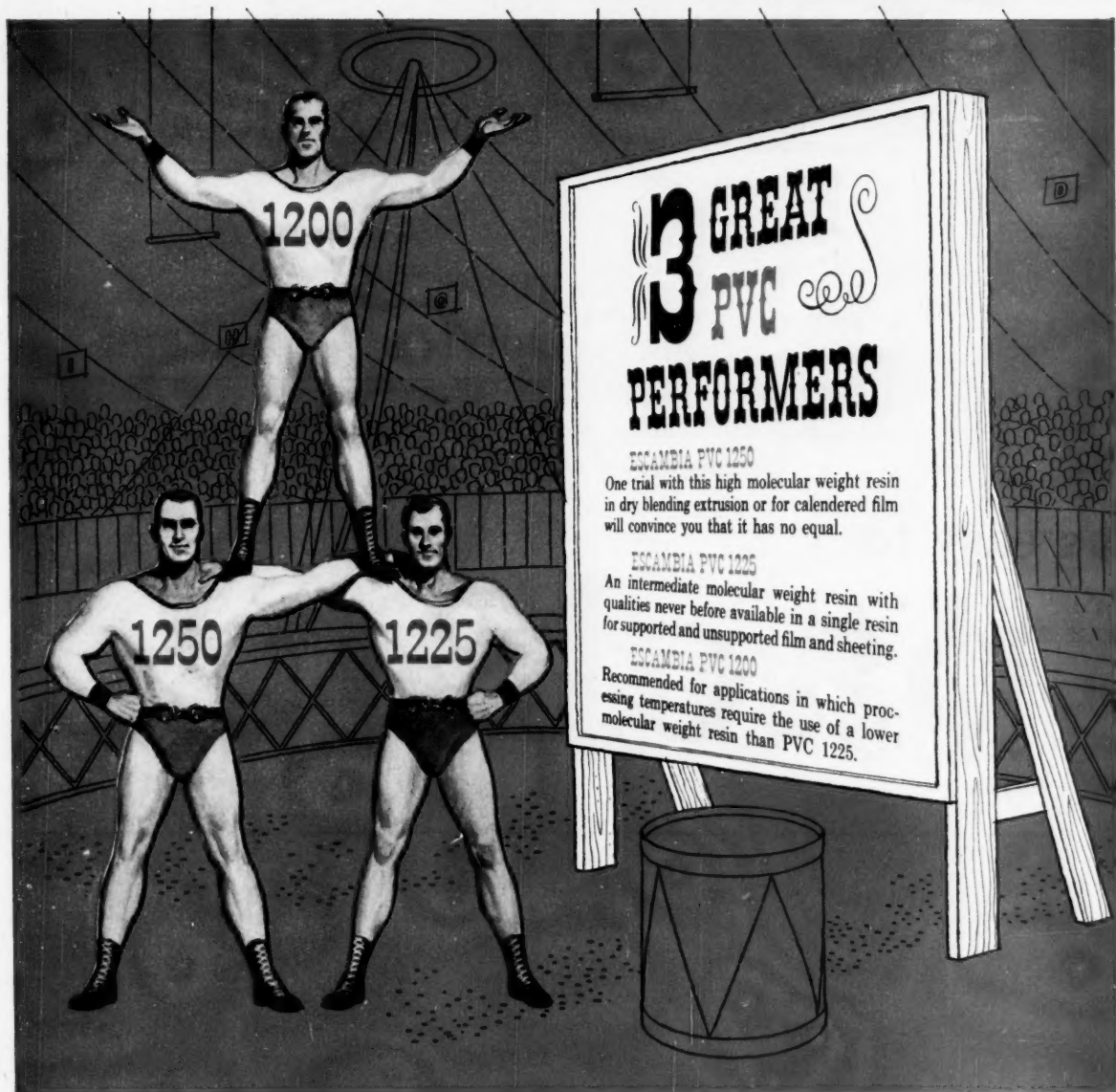
The ultimate aim of the research is to devise a practical method of treating potted or bare-root nursery plants. Nemas insert a hypodermic needle-like spear into the plant tissue, draw off vital juices, thereby reducing plant yields and vigor.

Because of their tiny size (4,800 of them laid head to tail would measure only an inch), hardness, rapid and prolific reproduction, nemas are particularly difficult to kill. Chemical preparations are often repelled or rendered ineffective by soil constituents. Reports from U. S. Dept. of Agriculture representatives in the South indicate that no economically practical poison that will control nematodes has been found.

EXPANSION

• Smith, Kline & French Laboratories (Philadelphia) is opening additional research facilities in suburban Upper Merion Township, Pa. Located on a 25-acre tract, the new lab will house pharmaceutical studies. It's part of a \$21-million expansion program covering the years 1954 through '57.

• General American Transportation Corp. (Chicago) has completed its new, \$750,000 plastics research lab in East



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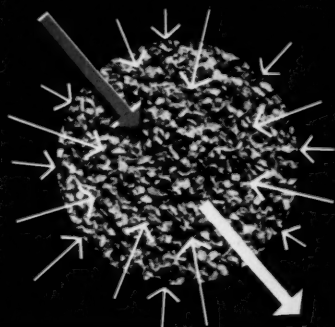
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RESEARCH

Chicago. Development of new plastics and research to improve existing products will be carried on in three basic divisions: reinforced plastics research; thermoplastic research; physical testing.

- Cutter Laboratories (Berkeley, Calif.) has started construction of the first unit of a new research synthetic chemical and pharmacology center. Completion is scheduled for December.

- Consulting Associates (Cleveland), a new firm, will offer services in high-polymer and coatings technology and formulation.

- The U. S. Bureau of Mines is constructing a "hot lab" at its University of Utah campus location at Salt Lake City. The new, \$50,000 addition will conduct tracer studies in extractive metallurgy. Isotopes will likely come from AEC's Reactor Testing Station at Arco, Idaho.

- Dan River Mills (Danville, Va.) has started work on a new chemical research lab to fit in with plans to manufacture chemicals needed for its textile operations. The firm now purchases these materials.

- Miles Laboratories Inc. (Clifton, N. J.) has completed expansion of its Takamine Laboratory subsidiary, plans to double the latter's present research staff. Takamine is engaged in development of enzyme products for industrial uses.

- Consolidated Mining & Smelting Co.'s (British Columbia, Can.) new \$250,000 research center at Trail, B. C., will emphasize research on new products aimed at expanding the province's industry. Particular interest will be shown in lead and zinc.

PRODUCTS

New Hydrazines: Hydrazine dihydrochloride, hydrazodicarbonamide and monohydrazinium phosphate are now offered in lab quantities by the Industrial Chemicals Division of Olin Mathieson Chemical Corp. (Baltimore). The latter two are potentially useful chemical intermediates; the dicarbonamide is also suggested for use as a growth-regulating agent and a constituent for polyamide resins. Hydrazine dihydrochloride is a chlorine scavenger and a possible ingredient of copper cleaners.

- **Column Packing:** Procter & Gamble (Cincinnati) reports successful use of



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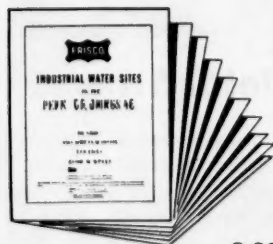
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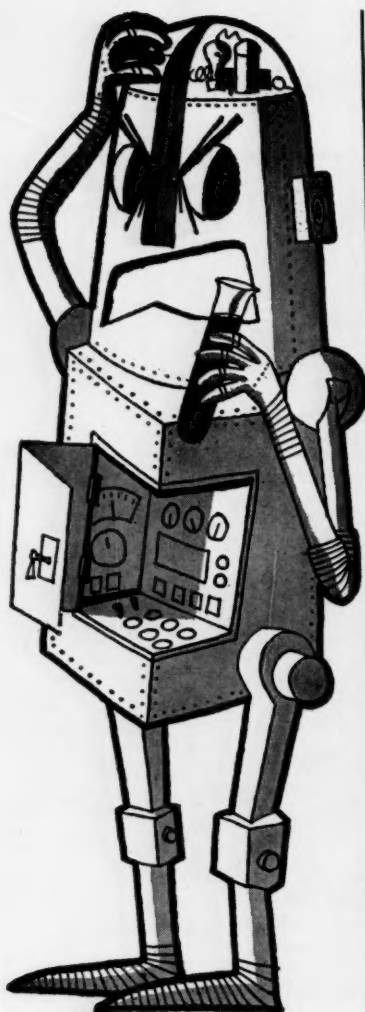
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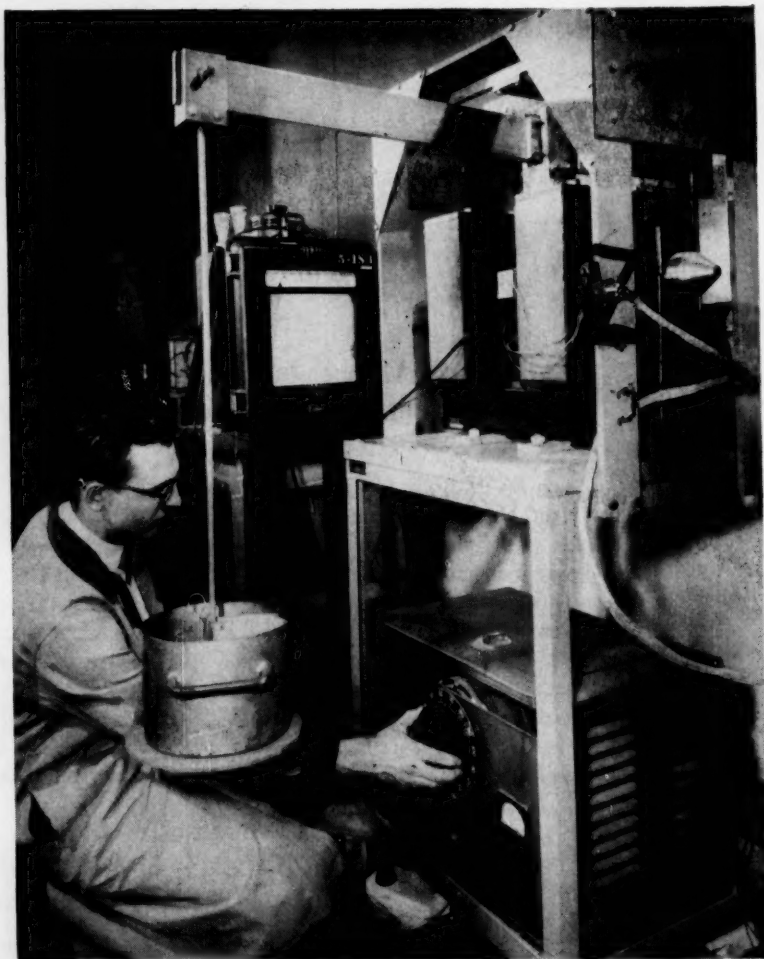
RESEARCH

Tide, the commercial synthetic household detergent, as a column packing material in vapor-phase chromatography. The detergent, with perfume and other minor additives removed, is reportedly useful because of its particle shape and size, which result in slow pressure drop.

Polyolefin Resin: Good flow characteristics and low molding temperature are reported features of Fortiflex A 500, Celanese Corp. of America's

(New York) new polyolefin. Offering high temperature resistance, dimensional stability and stiffness, it is said to hold possibilities in housewares, industrial parts, paper coating, film and sheeting.

Pyridine Entry: Aromil Chemical Co. (Baltimore, Md.) is producing 4-(*p*-nitrobenzyl)-pyridine—a new reagent used for quantitative colorimetric determinations of alkylating agents, ethylene imines, nitrogen and sulfur mustards.



Semiconductor Probes Metal Stress

Indium antimonide, a semiconductor, is helping these Battelle Memorial Institute (Columbus, O.) researchers probe the reasons why metals fail under stress. In the device (above), the antimonide is deformed at controlled temperatures

and pressures, and changes in its electrical properties observed. As its crystalline structure changes under these conditions, the compound conducts electricity like true metals. This characteristic, it is hoped, will reveal how metal defects lead to fracture.

Chemical Week • August 17, 1957

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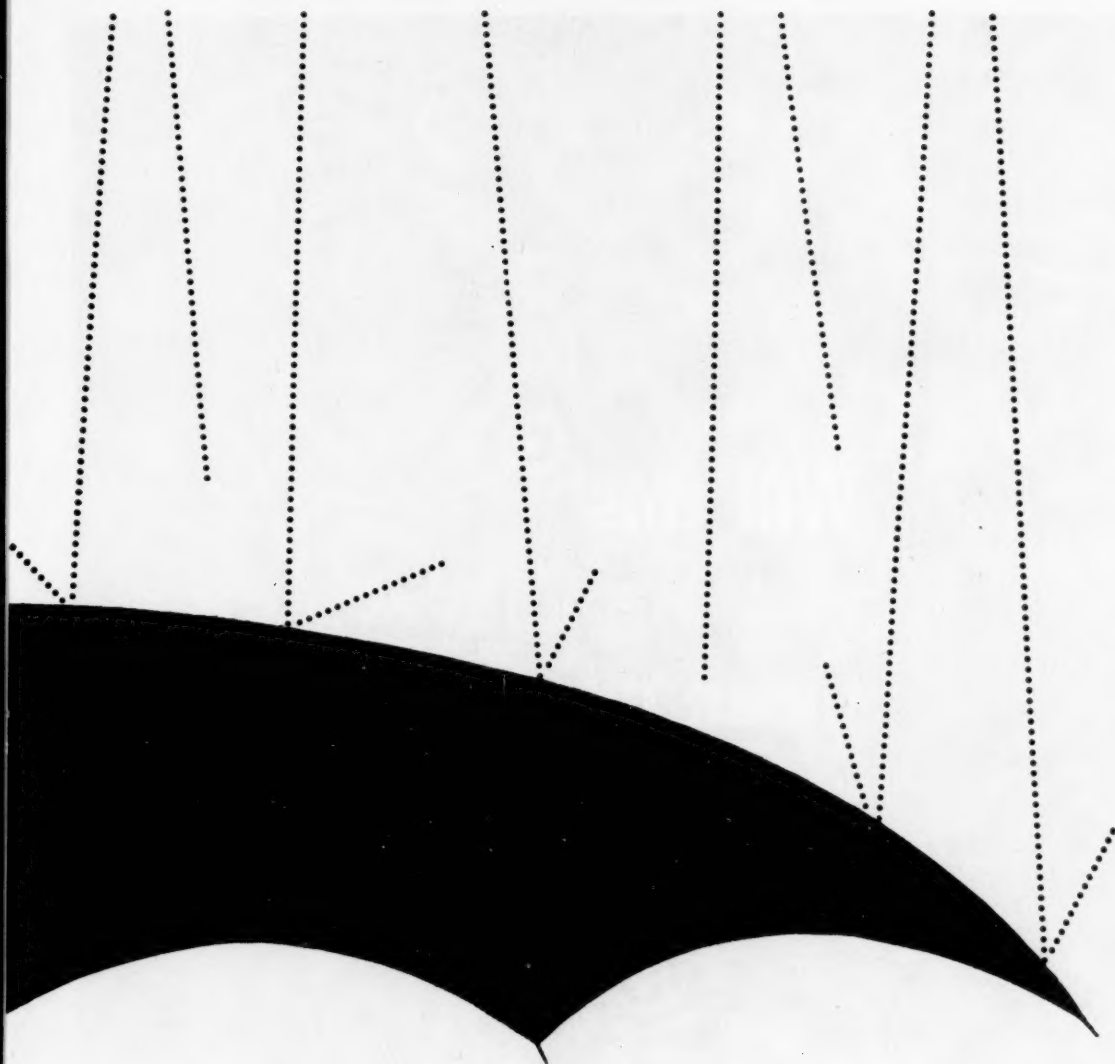
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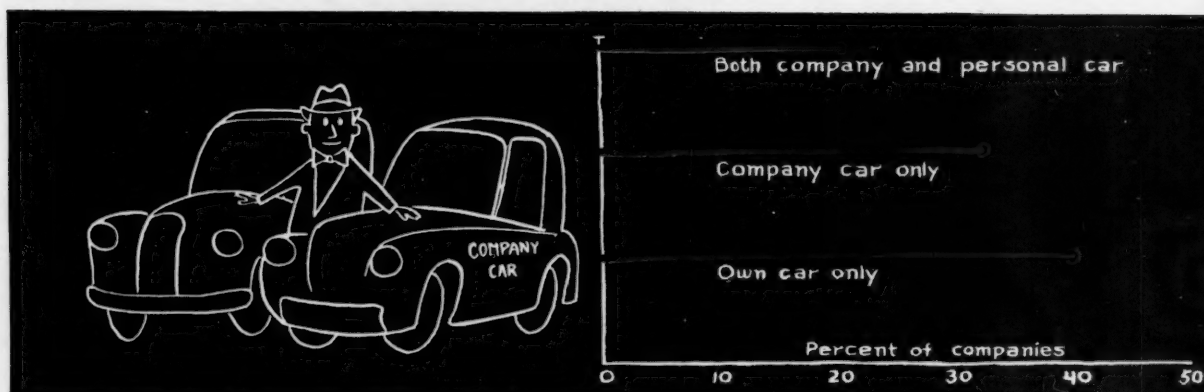
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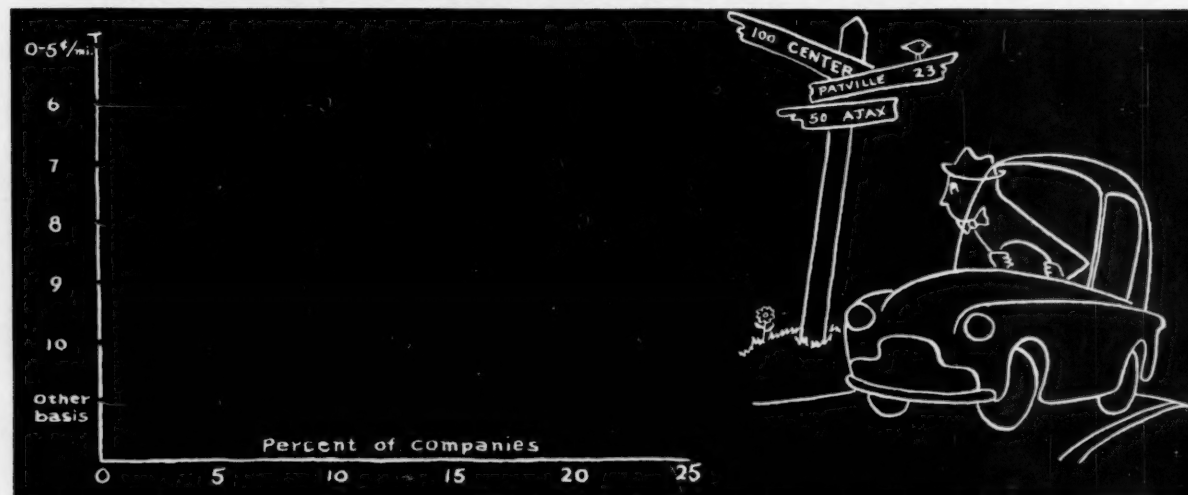
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SALES AND DISTRIBUTION



Company or Personal Car: Which does the chemical salesman use?



Mileage Allowance Rate: How much do companies let salesmen charge?

How Do You Handle Travel Expenses?

Probing hard and deep for facts on salesmen's expense allowances, the Drug, Chemical & Allied Trades (DCAT) section of the New York Board of Trade has just come up with some fresh data that's bound to prove a guidepost in sales cost-budgeting.

Canvassing both New York metropolitan-area firms and other companies, DCAT scrutinized practices in auto transportation, insurance, road arrangements, entertainment and other topics. Here are results from about 320 companies:

Car Costs: In 41% of the companies surveyed, salesmen use personal cars exclusively. In another 33% of firms

reporting, the policy is that company cars must be used. Other respondents use both approaches. And, about half of the firms own the cars; the others lease them.

Mileage allowance policies vary widely (see chart). Some 51% of the respondents allow between 6-8¢/mile. Only 9% permit charges greater than 8¢/mile.

Can salesmen use the company-owned vehicle for personal use? For 40% of the surveyed concerns, the answer is "yes." The remainder insist that company autos be driven for business purposes only.

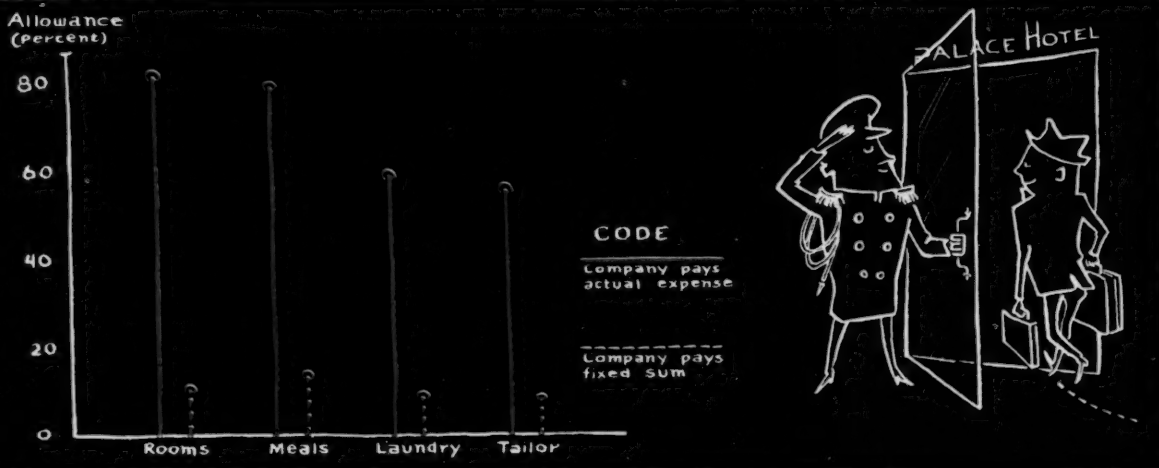
Insurance Tab: Companies tend to foot the bill for property damage and

liability insurance more often than for collision, fire and theft and medical payment insurance. The pattern:

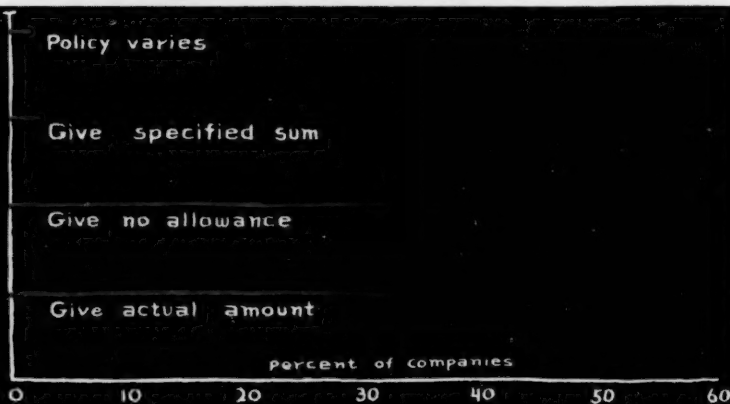
	SALESMAN COMPANY PAYS PAYS	
	(percent of firms replying)	
Property		
Damage	33%	57%
Liability	31	59
Collision	48	44
Medical		
payments	50	42
Fire and theft	45	47

Insurance costs are shared between salesman and company in about 6%

SALES



Living On the Road: Who pays for room, meals, laundry and cleaning?



Entertainment Chits: How much does the company underwrite?

of the cases, paid by a leasing firm 2% of the time.

Depreciation: It's not usual for a company to allow depreciation in cases where the sales representative drives his own car. Only 19% of the respondents allow depreciation payments, while 50% allow none. About 6% include depreciation in the mileage allotment. (Twenty-five percent of those completing the questionnaire didn't answer this question.)

Here are the sizes of monthly depreciation allowances:

	PERCENT OF FIRMS REPLYING
\$30 or less	1%
\$30 - \$39	2%
\$40 - \$49	2%
\$50 - \$59	3%
over \$60	1%

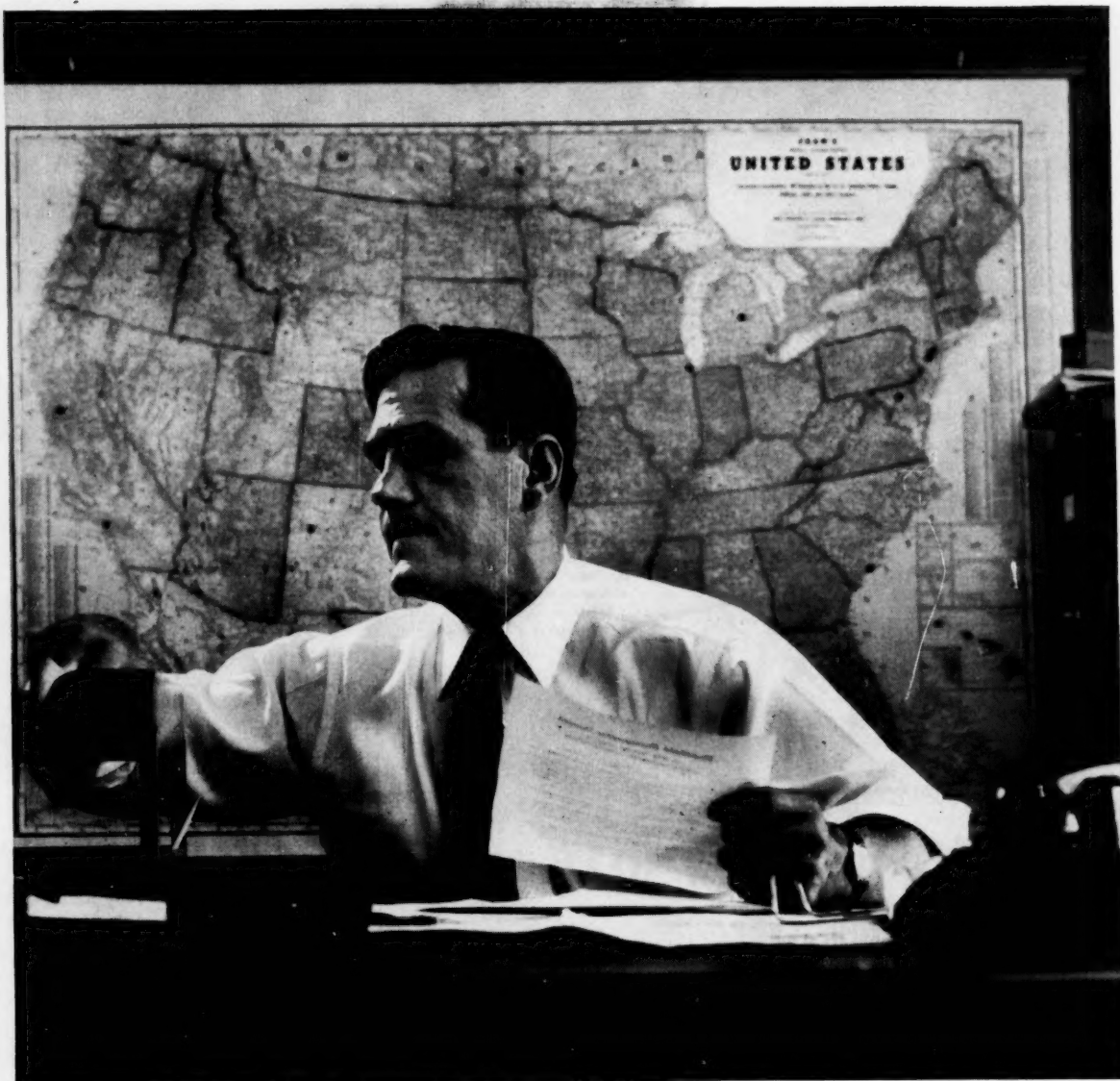
Incidentals: On the whole, companies are generous when paying bills for such items as parking and bridge tolls. Better than 77% of the firms participating in the poll pick up the check for parking meters, parking lots, bridge tolls and overnight garaging. Repairs, however, are another matter. Only 49% of the companies pay repair bills. And two-thirds of the respondents do not allow lunch money for salesmen working in the home area. But the salesman fares considerably better when traveling (see chart, above); more than 79% of the firms pay for rooms and meals. Somewhat fewer (62%) absorb entertainment expenses.

Donations: It's a rare salesman who isn't occasionally asked to buy a ticket, take advertising space in some publication or make a contribution

for a worthy cause. The survey shows, however, that more often than not, the salesman must take the tab. Only 28% of companies pay for tickets, 10% for advertising space and only 20% for contributions.

Travel Insurance: Some companies provide special travel insurance for its executives and salesmen. Company policy, however, varies with the mode of transportation. Air travel insurance is furnished by 49% of the companies for its executives, by 37% for field supervisors and by 34% for salesmen. But for auto transportation, only 25% of the respondents provide insurance for executives, about 17% for field supervisors and salesmen. Insurance practices for other forms of public transportation are nearly identical to those for car transport.

No Difference: DCAT's survey



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pH value	7.5	
Methyl red alkalinity	25	ppm
Hardness	48	"
Dissolved solids	75	"
Silica as SiO ₂	5.2	"
Iron as Fe	0.05	"
Calcium as Ca	18.0	"
Magnesium as Mg	0.5	"
Sodium as Na	6.0	"
Chlorides as Cl	12.0	"
Sulphates as SO ₄	19.0	"
Bicarbonates as HCO ₃	30.0	"

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SALES

broke down the data according to area—New York, non-New York and over-all. With very few exceptions*, no significant differences between New York and non-New York firms turned up. DCAT's report makes no effort to determine optimum salesmen car expense procedures. Each firm, of course, is something of a special case. But the data should provide sales managers with a useful guide.

DATA DIGEST

• **Fatty amines:** 20-page brochure describes types of fatty amines and synthesis, gives vapor-pressure data, solubility values and ionization constants. Described in detail: major chemical reactions and suggested uses. Armour and Co., Chemical Division (Chicago).

• **Forest fertilization:** 39-page booklet abstracts recent literature, outlines present status of forest-fertilization practice. National Plant Food Institute (Washington, D. C.).

• **Polyethylene:** 642-page book, authored by 38 specialists, contains facts on manufacturing, properties, methods of fabrication, applications and estimates of future trends. Price: \$18.50. British Publications, Inc. (New York).

• **Polyethylene extrusion:** Article defines extrusion quality, considers such factors as dimensional uniformity, operating conditions, product homogeneity and mixing efficiency. Bakelite Co. (New York).

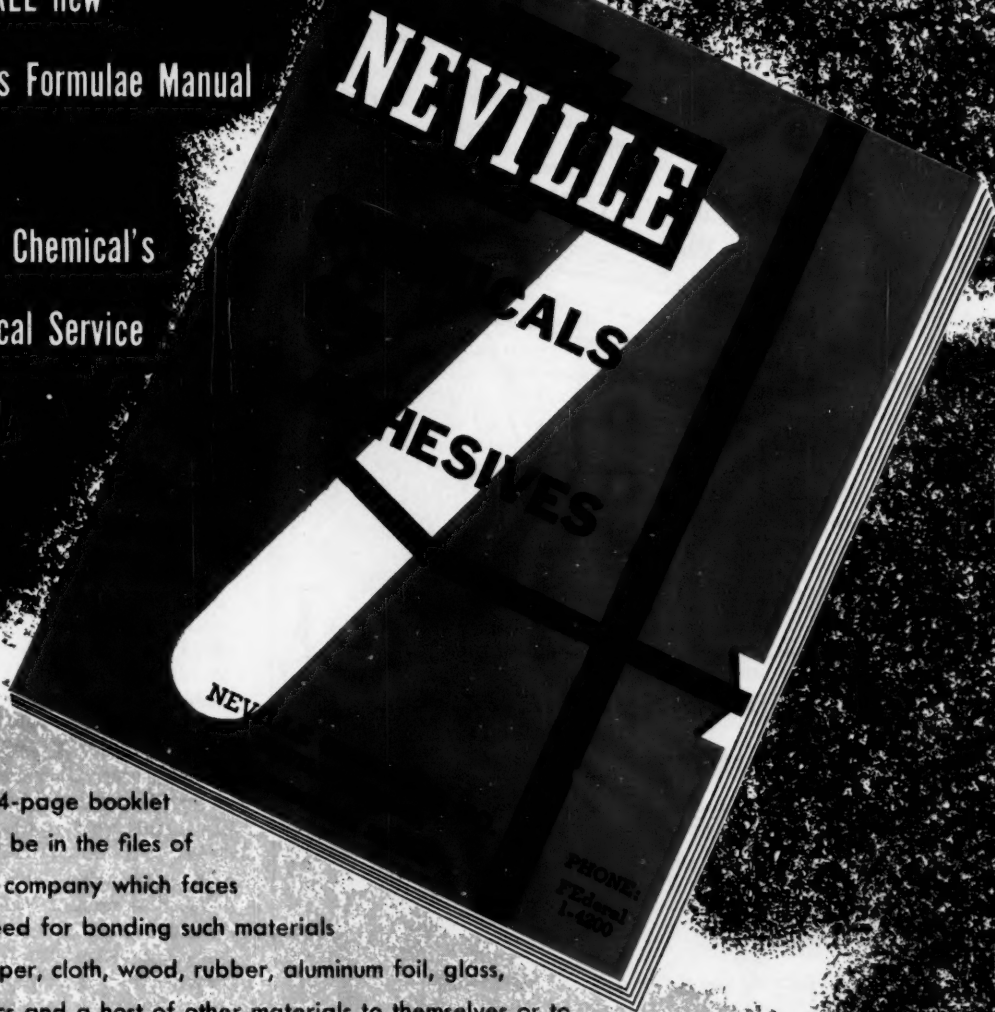
• **Pulp bleaching:** Compendium covers pulp-bleaching procedures and instrumentation, handling of hypochlorite, chlorine dioxide and peroxide. Hooker Electrochemical Co. (Niagara Falls, N. Y.).

• **Heavy goods packaging:** Booklet describes how corrugated boxes are used in packaging weighty items such as plastics and process machinery. Included: costs, assembly, product protection and relative advantages of basic box styles. Hinde & Dauch (Sandusky, O.).

• **Plasticizers:** Two bulletins describe plasticizers DP-200 and DP-250. The former, an ester type, is suggested as a general-purpose material and for imparting low-temperature flexibility to vinyl and rubber

*Two: percentagewise, twice as many New York companies allow \$¢/mile as do non-New York firms; 66% of New York firms paid for entertainment, compared with 55% of non-New York firms.

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SALES

materials. DP-250, a polyester-type with low viscosity, is suggested in applications where permanence and durability are needed (upholstery, luggage, etc.). E. F. Drew & Co., Inc. (New York).

- **Essential oils:** Brochure provides view of company manufacturing, research, technical service and sales facilities. Fritzsche Brothers, Inc. (New York).

- **Carbon products:** Folder gives carbon and graphite properties, suggests uses in glass industry. Bulletin AB, Speer Carbon Co. (St. Marys, Pa.).

- **Urea and melamine:** New 73-page handbook thoroughly discusses use of urea and melamine molding compounds, covers storage, preforming, preheating, molding, finishing and testing. Barrett Division, Allied Chemical & Dye Corp. (New York).

- **Sodium bicarbonate:** 16-page brochure furnishes specifications and physical data, describes use in manufacturing processes. Church & Dwight Co., Inc. (New York).

- **Plastics resistance:** Book gives results of extensive U. S. Navy tests of 25 types of plastics materials with 15 different chemical reagents—including acids, alcohols, mercaptans, fuels, hydraulic fluids and aniline. Price: \$9. PB 121133, Office of Technical Services, U. S. Dept. of Commerce (Washington 25, D. C.).

- **Liquid polymer:** 8-page brochure gives facts on LP-31, a high-molecular-weight, liquid polysulfide polymer. Uses are suggested where low-temperature properties, moisture and gas impermeability, weathering resistance and dielectric qualities are needed. Thiokol Chemical Corp. (Trenton, N. J.).

- **Butanol.** Folder offers data on physical properties, specifications, shipping considerations, solubilities and constant boiling mixtures. Uses are suggested in surface coatings, resin and plasticizer intermediates and in organic synthesis. Union Carbide Chemical Corp. (New York).

- **Antioxidants:** Folder furnishes information on use of Tenox antioxidants in preserving nuts. Eastman Chemical Products, Inc. (Kingsport, Tenn.).

- **Silica gels:** New literature gives comparative data on gels that change color with changing humidity. Davison Chemical Co. (Baltimore).

How to make a triple play in the hard-hitting CPI*

1st Base . . . 26th Exposition And Chem Show

Your "once - every - 2 - years" chance for person-to-person contact with your prospects in the *chemical process industries. The last show drew 46,705 . . . 60,000 are expected this year. With 500-plus booths for them to visit, they may never find you unless you let them know about your display in advance.

And nothing could be easier . . . when you remember how closely CHEMICAL ENGINEERING's circulation parallels the Chem Show attendance. The Chem Show program listings are included in CE's 1957 Inventory Issue. Exhibitors who advertise in this issue will be listed in bold-face in the program and will receive 1/2-inch extra space to print a short message. In the issue itself, readers will be referred to the ad for additional information . . . in the copies of the program to be separately distributed (a 60,000 additional circulation) readers will be referred to the ad in the Inventory Issue for further details.

Your ad in the Inventory Issue is a low-cost insurance policy . . . to protect your investment in booth, display and man power. It's mailed almost 3 weeks before the show, giving your prospects plenty of time to include you in their itinerary. Remember, the buyers attending this show are primarily engineers . . . engineers specifically looking for new developments, new equipment, raw materials and services. And more engineers in all CPI functions read CHEMICAL ENGINEERING — prefer it by a ratio of 3 to 1—than any other paper in the field.

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This Inventory provides its 44,000 readers with a unique service . . . information on new developments in the industry which is available nowhere else. Your advertisement in this issue hits them at the psychological moment . . . when they are most receptive to your sales story. Chem Show exhibitors who chose to advertise in this section also receive the benefit of the special program listing.

3rd Base . . . Inventory Of Chemical Engineering Awards

This biennial award recognizing the results of outstanding teamwork among all departments of the selected organization naturally commands high interest throughout the industry . . . particularly among current and past award winners. This makes it an especially effective showcase for your advertising . . . where it will garner an unduplicated, *personal* readership.

Home Plate . . . A Three-in-One Bonus Package For Advertisers

Nowhere else in the industry will you find so much for your advertising dollar . . . the Chem Show brings personal-contact appeal; the Inventory section guarantees 12-month usefulness; the Award section brings high interest readership and prestige.

This one issue of CHEMICAL ENGINEERING . . . the 1957 Inventory Issue . . . can wrap-up your entire advertising program, help you wind up '57 in high sales gear, with a healthy head-start for '58.

The advertisement features a large, stylized graphic of the magazine cover for the 1957 Inventory Issue. The cover is dark with white text. At the top, it says "Chemical Engineering" in a script font, followed by "MID NOVEMBER 1957". Below that, a large circle contains the year "1957". To the left of the circle, it says "Published November 15, 1957" and "Forms Close September 25". To the right of the circle, it says "new" and "INVENTORY ISSUE". Below the circle, there is a list of contents: "AWARDS", "CHEM SHOW", and "PLANTS, CHEMICALS, EQUIPMENT". At the bottom of the cover, it says "A McGraw-Hill Publication • ABC, ABP • 330 W. 42nd St., New York 36, N.Y."

CSC NITROPARAFFINS as solvents in VINYL COATINGS

offer **5** important advantages!

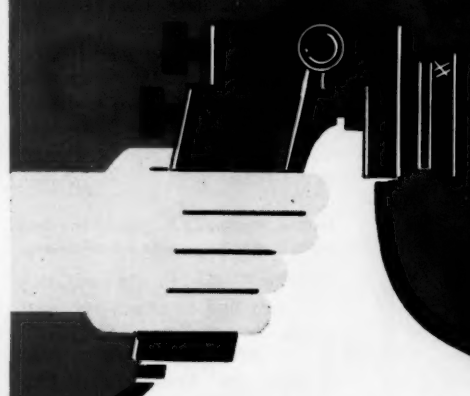
1. Lower Viscosity!

2. Higher Solids!

3. Slower Evaporation Rate
and Better Flow!

4. Less Solvent Retention!

5. Reduced Odor Problems!



Studies at CSC's Lacquer Laboratories show that 2-Nitropropane and Nitromethane outperform the ketones in the preparation of vinyl spray formulations. Formulators can now take fullest advantage of the superiority of CSC Nitroparaffins in producing high-quality vinyl coatings.

High solids vinyl formulations prepared with 2-Nitropropane have good stability and show no tendency to gel during storage. 2-NP resin solutions are considerably lower in viscosity than mixtures based on medium-boiling ketones, allowing higher weights of solids in a given volume of lacquer and thus greater surface coverage.

The higher evaporation rates of the ketones normally used are serious handicaps leading to rapid setting up of films and poor flow. Flammability is a constant fire hazard. The slow evaporation rate of 2-NP and Nitromethane solutions produce good flow. The NP's have mild, agreeable odor and escape more rapidly when drying, eliminating odor problems. High flash points and low volatility are added safety features.

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In Mexico: Comsolmex, S. A., Mexico 11, D.F.

Technology Newsletter

CHEMICAL WEEK
August 17, 1957

National Carbon's new way to make and bake carbon products may well be getting into headlines soon. First public mention of the process was made some months back at Union Carbide's annual stockholders' meeting. At that time, the only information given out was that it would shorten the time from eight weeks to eight minutes.

The firm is still not saying any more about it. But the secret is "resistance baking"—a current is passed through the carbon to give a quick cure. It's an adaptation of a method worked up by a Cuban (who at one time was asking \$600,000 for it).

There are sizable mechanical and engineering difficulties involved in putting the process into commercial practice, though the basic idea is simplicity itself. Also, there may be some limitations to the technique. The best opinion now is that it will work well only on articles that approach cubeness because of thermal stresses set up in articles of greatly varying dimensions.

•
A new twist in the use of safflower and other unsaturated oils in heart cases may be shaping up. The retired president of a Midwest pharmaceutical house—himself a heart case—has just finished developing an emulsifiable formulation. Diglycerides make the fatty acids more compatible, eliminate gastric disturbance.

Using himself as a guinea pig, he's decided the formula has helped a good deal. He plans to market it commercially.

The basic idea isn't new. Sharp & Dohme did similar work some time ago. It decided, however, to drop the idea, possibly because of the emulsifier it was using.

•
Is there still an engineer-scientist shortage?

Yes, says National Science Foundation Director Alan Waterman in a confidential letter to top government manpower experts. In it, Waterman complains of the "false impression" of the supply-demand picture given in a recent study by the Bureau of Economic Research (*CW*, July 13, p. 21). That study—made at Waterman's request—concluded that there is no shortage, on the basis of the fact that scientists and engineers are not drawing the comparatively high salaries they should if a heavy demand for their services existed.

Waterman quarrels with the basic premise, cites teachers' pay as one instance where such reasoning doesn't hold true. He accuses the bureau of overlooking the "well-recognized existence of special shortage situations in particular fields and areas." These, he holds, are responsible for critical aspects of the national scientific manpower problem.

Technology Newsletter

(Continued)

His main concern: that the bureau's well-publicized conclusion may bring a drop-off in college science enrollments. He feels that the talk of a surplus of engineers in 1950 is the cause for the present shortage. He adds, too, that the major need now is not for a greater number of engineers but for engineers of a better quality. He feels that's where the emphasis should be—developing engineers geared to the increasingly complex needs of industry and the nation's defense.

Yes, also says the Manufacturing Chemists' Assn. in an editorial in the upcoming *MCA Chemical News* (for July-August). MCA reports it has reviewed about everything of consequence published on the subject . . . studied reports and statements . . . met with interested authorities in education, business and government." It concludes: "The shortage is no mirage."

Production of heavy water by low-temperature distillation of hydrogen will be begun by Farbwerke Hoechst this fall. The plant, which was started almost two years ago (*CW Technology Newsletter*, Oct. 29, '55), cost \$1.7 million, will produce 6 tons/day (about 800 grams per hour). Pricing policy has not been firmed up, but Hoechst says it will be somewhere near the world market price of 24¢/gram. The firm hopes to eventually drop the price much lower, but doesn't figure it can ever hit the U. S. price of 6¢. Hoechst points out that its plant is entirely self-financed, feels that U. S. production is partly government-subsidized.

The low-temperature fractionation of hydrogen to get deuterium has long been touted as a potentially economic route to heavy water (D_2O). Du Pont engineers worked up cost estimates for such a plant back in 1943. In 1950-51, Hydrocarbon Research designed such a plant. Both projects were shelved because of lack of experience in handling large volumes of liquid hydrogen (at $-250^\circ C$).

Hydrocarbon Research proposed to tie it into hydrogen production at a synthetic ammonia plant. And that's just what Hoechst is doing. (The French Atomic Energy Commission has a similar project at the Toulouse plant of L'Air Liquide.)

Another boost for butyl rubber. The Dept. of the Army reports development of an all-butyl, heavy-duty truck tire. It says the tire is the "closest approach yet to making this country entirely free of dependence on natural rubber." The new tire, size 9.00 x 20, was developed by Esso and the Pennsylvania Tire Co. (Mansfield, O.). Work is now under way on 14.00 x 20 and 24.00 x 25 earth-mover types.

Upjohn has received a contract to make steroid hormones for the National Cancer Institute's drug screening program—the first private firm to receive such a contract. Upjohn will produce between 15 and 25 different commercially unavailable steroids per year under the contract, which is expected to cover a three-year period.



The Most-Wanted Killers in the Country!

Public health, better crops, water supply and game fishing have one thing in common. All benefit by the growing list of lethal weapons against insects, rodents and trash-fish.

Whichever you have to contend with—insects, rodents or fish—you can obtain from Penick the pesticides to dispatch them effectively. We have the most-wanted killers in the country!

Penick makes or markets an unusually comprehensive range of insecticidal materials. We have developed many widely-used basic formulations. A number of them owe their effectiveness to Sulfoxide®, Penick's outstanding synergist that increases the potency of active ingredients.

In the field of rodent control, Penick is a major producer of Warfarin®, anti-coagulant rat-killer developed by the Wisconsin Alumni Research Foundation.

To solve problems caused by trash-fish in lakes, streams and reservoirs, Penick developed Pro-Noxfish®, a fast-action combination of rotenone and Sulfoxide. Its outstanding success has made us the world's leading manufacturer of fish toxicants.

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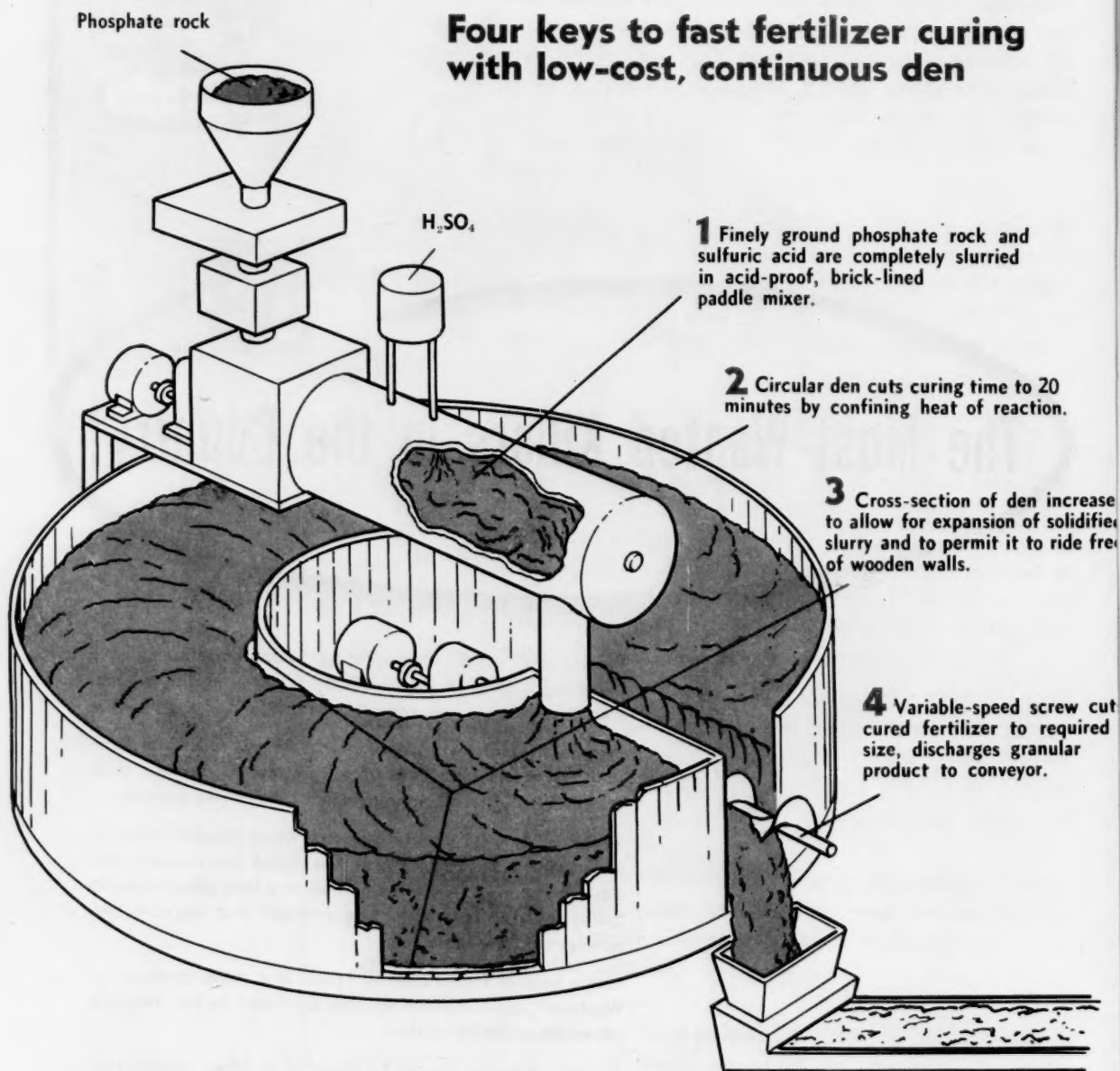


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Agricultural Chemical and Insecticide Division

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Quick Cure for Superphosphate Batching

U.S. fertilizer producers, unlike producers in many other chemical process industries, seem quite content to stick with batch methods of manufacture. In fact, they've become so proficient at making superphosphate from phosphate rock in batches that the inventors of several relatively new continuous superphosphate processes have found it hard to meet the eco-

nomic challenge of the current competition. This week Nino Agliardi and Alfonso Liguori* were in the midst of their try—with an Italian process built around the Rumianca-Tosetto continuous den (sketch, above).

Developed and engineered by

*Agliardi, technical manager, and Liguori, general manager of Rumianca's sales and export business, came to the U.S. in June for TVA's pilot-plant demonstrations of fertilizer technology, stayed to discuss other business.

Rumianca S.p.A. (Torino, Italy), the continuous den boasts a three-year record of successful commercial operation in Italy, has won acceptance by several European fertilizer producers. Unique feature: circular construction that conserves heat of reaction, promotes complete acidulation of the phosphate rock in just 20 minutes.

Handling Economics: In the con-

Another example of



**CHEMICAL
PROGRESS**

Rods of LEXAN, G.E.'s new polycarbonate plastic, are tough enough to be hammered through lumber. LEXAN resin also has exceptional heat resistance, dimensional stability and electrical properties.

GENERAL ELECTRIC CHEMICAL RESEARCH

Develops LEXAN plastic tough enough to be hammered through a plank

General Electric has developed a new plastic tough enough to replace cast metals in many applications. Called LEXAN® polycarbonate resin, the new thermoplastic has such high impact strength that parts molded of it can withstand hammer blows without breaking.

LEXAN resin has a hard, smooth surface and can be made in transparent and opaque colors. It resists heat and mechanical stress well, and has excellent electrical properties. In preliminary tests, LEXAN resin has shown promise in such applications as coil forms, structural and insulating parts, gears and appliance components. In many cases, one part molded of the new plastic is able to replace an assembly of several parts made from conventional materials.

LEXAN resin joins a growing list of G.E. chemical discoveries...a list that includes many of the new silicones, electrical insulating materials, and phenolic molding and coating resins. LEXAN resin is not yet available for field evaluation; the limited quantities now being produced are being used in a controlled testing program. For preliminary information on LEXAN resin, write Dept. CDD, CHEMICAL and METALLURGICAL DIVISION, General Electric Company, Pittsfield, Mass.

Progress Is Our Most Important Product

GENERAL  ELECTRIC



Rumianca's Liguori (left), Agliardi prescribe a quick-cure.

FRANK AMELIA

ventional production of superphosphate, phosphate rock is ground, acidulated with sulfuric acid and discharged from the mixer into a box-like den to permit solidification of the resultant slurry. The porous, solidified product is then broken out of the den by blasting or other mechanical means, transferred to a storage pile where it remains for several days to permit the acidulation reaction to go to completion. Goal of the continuous, quick curing process: elimination of large inventories held up for curing, substitution of automatic handling techniques for cumbersome batching.

Because the curing of superphosphate depends on the rate of reaction between rock and acid, fine grinding of the phosphate rock (which speeds reaction but may add as much as 40¢/ton to the normal grinding cost of 50-70¢/ton) is a prerequisite of any fast curing process. But this minor disadvantage, and one of raw-material-handling, its proponents claim, are more than compensated for by the advantages of continuous operation.

Italian Process: In the Rumianca-Tosetto process, finely ground phosphate rock (90% through 80 mesh, 60% through 200) is slurried with 65-75% sulfuric acid (0.65 lbs. of 100% H_2SO_4 per pound of rock) in

an acid-resistant, brick-lined mixer. (The lining material was specially developed by Rumianca to resist abrasion by the rock, is also used for equipment in the company's newly developed complete-fertilizer process.) From the mixer, the pastelike slurry is dropped onto a slowly rotating, circular slab of concrete that forms the base of the continuous den.

The wooden walls of the den confine the slurry until it has solidified, are so designed that the solid cake rides free of the walls as it continues to expand during the curing cycle. This feature, says Agliardi, almost completely eliminates wearing of the walls, makes replacement necessary only once every 6-7 years.

After 20 minutes in the 20-ft.-diameter den, the superphosphate is ready for granulation and cooling. As the slab continues to revolve, the 3-ft.-thick cake is fed into a spiral screw cutter that reduces it to the required size. Coarseness of the finished fertilizer can be easily adjusted, says Agliardi, by regulating the speed of the spiral screw.

Cooling of the granular superphosphate takes place on the conveyor that transfers the product to storage. From there, the material, which now contains less than 2% free acid and less than 8% moisture, is ready for

packaging for direct application to the soil, or for processing into complete fertilizer formulas.

Lost Cost, Upkeep: Because the granulating cutter is the only mechanical part subject to wear, says Agliardi, the R-T continuous den is virtually maintenance-free, inexpensive to operate.

The initial cost of the 10-tons/hour den employed at Torino, he adds, is about \$20,000-25,000 (installed), may run 35-40% higher in the U.S. because of higher labor costs for the on-site construction of the den.

In this respect, the R-T continuous den compares favorably to many of the conventional batch dens used in this country. For example, Sturtevant Mill Co. (Dorchester, Mass.), whose dens are most widely used in the U.S. for normal superphosphate production, sells a 16-ton batch den of similar capacity (seven dens in eight hours for a 100-tons/day plant) for about \$33,000, including weighing and mixing equipment. Sturtevant also has a continuous den on the drawing board, but reports it's satisfied, as are its customers, with present batch equipment.

Other Shortcuts: Despite their preference for the familiar batch processes, U.S. fertilizer producers haven't completely ignored continuous superphosphate techniques. In the mid-'40s, for example, A. J. Sackett & Sons Co. (Baltimore) came up with its Super Flo process, featuring a mixing system that utilizes phosphate rock dust and an atomized spray of acid for acidulation, a pallet-conveyor den to feed solidified superphosphate to a rotary helical cutter. However, the granular product from the Super Flo process still requires a storage period to permit complete curing.

At its June pilot-plant demonstrations, TVA showed off another version of continuous processing to make superphosphate for immediate use in ammoniation and granulation processes.

Keys to the TVA technique: use of very fine phosphate rock (90-95% through 200 mesh), higher-than-normal ratio of acid to rock, lower-than-normal acid concentration. By using an excess of about 120-160 lbs. of H_2SO_4 per ton of rock, reports TVA, conversion of about 95% of the P_2O_5 into an available form can be obtained within one hour after mixing. Total

AMOCO CHEMICALS—A NEW RESOURCE

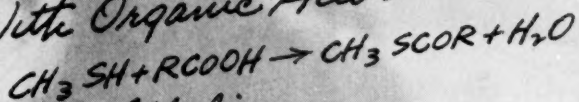
METHYL MERCAPTAN

Intermediate in chemical synthesis
now available in commercial quantities

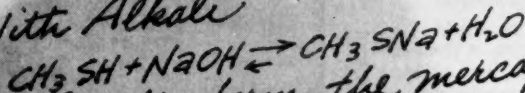
Methyl Mercaptan, $\begin{array}{c} \text{H} \\ | \\ \text{H}-\text{C}-\text{S}-\text{H} \\ | \\ \text{H} \end{array}$, a low-boiling, colorless liquid is worth exploring as an intermediate in the manufacture of insecticides, plastics and organic intermediates where a methyl-thioether linkage is desired. Many reactions of Methyl Mercaptan correspond to those of methyl alcohol.

Typical Reactions

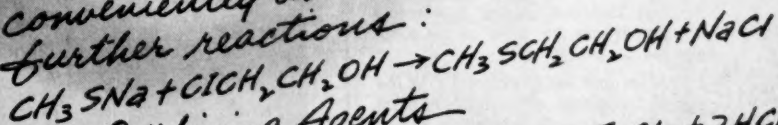
With Organic Acids



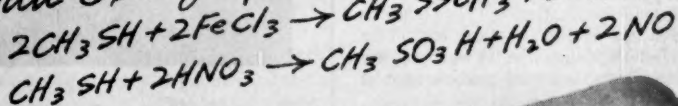
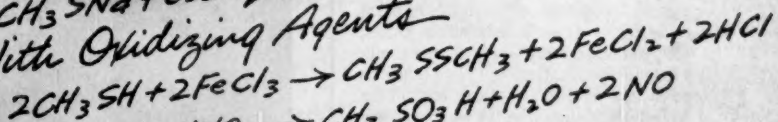
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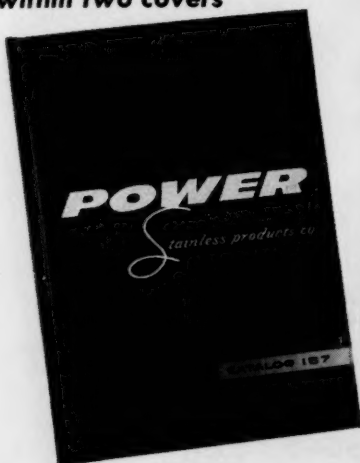
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ENGINEERING

time for denning: about 50 minutes in a Broadfield slat-conveyor-type den.

Available from Atlanta Utility Works (East Point, Ga.), the Broadfield den is another example of continuous fertilizer equipment that has found greater acceptance abroad than at home. Offered in standard capacities of 5-50 tons/hour, it's believed to run about \$60,000 for a 10-15-ton/hour den complete with weighing and metering equipment.

Fertilizer researchers at Iowa State College (Ames, Ia.) took still another tack to fast-curing, tumbled fresh granulated superphosphate with hot air in a Roto-Louvre dryer. Maximum conversions were obtained, they report, when temperature was kept be-

low 275 F; quick-cured products were superior in physical characteristics to storage-cured superphosphate.

Competing with Investment: The toughest competition that any continuous superphosphate process must cope with in the U.S. is the firmly established position of batch processes. Existing equipment is adequate for the job, represents a large investment that fertilizer producers aren't likely to scrap in a hurry.

But if continuous systems, such as the Rumianca-Tosetto den, can demonstrate a definite edge in operating economy, chances are that fertilizer producers won't let traditional batch-processing systems stand in their way.



Solving a Deep Disposal Problem

Divers like this one (above) are this week putting the finishing touches on a unique waste-disposal system 15 fathoms down in Pentland Firth, off the northern tip of Scotland. The underwater construction project was started about a year ago to provide a

channel for radioactive effluent from Britain's fast-breeder and submarine prototype reactors at Dounreay. When the nearly completed fast breeder (background) goes critical early next year, hazardous fission products will be channeled out to sea for dispersal.



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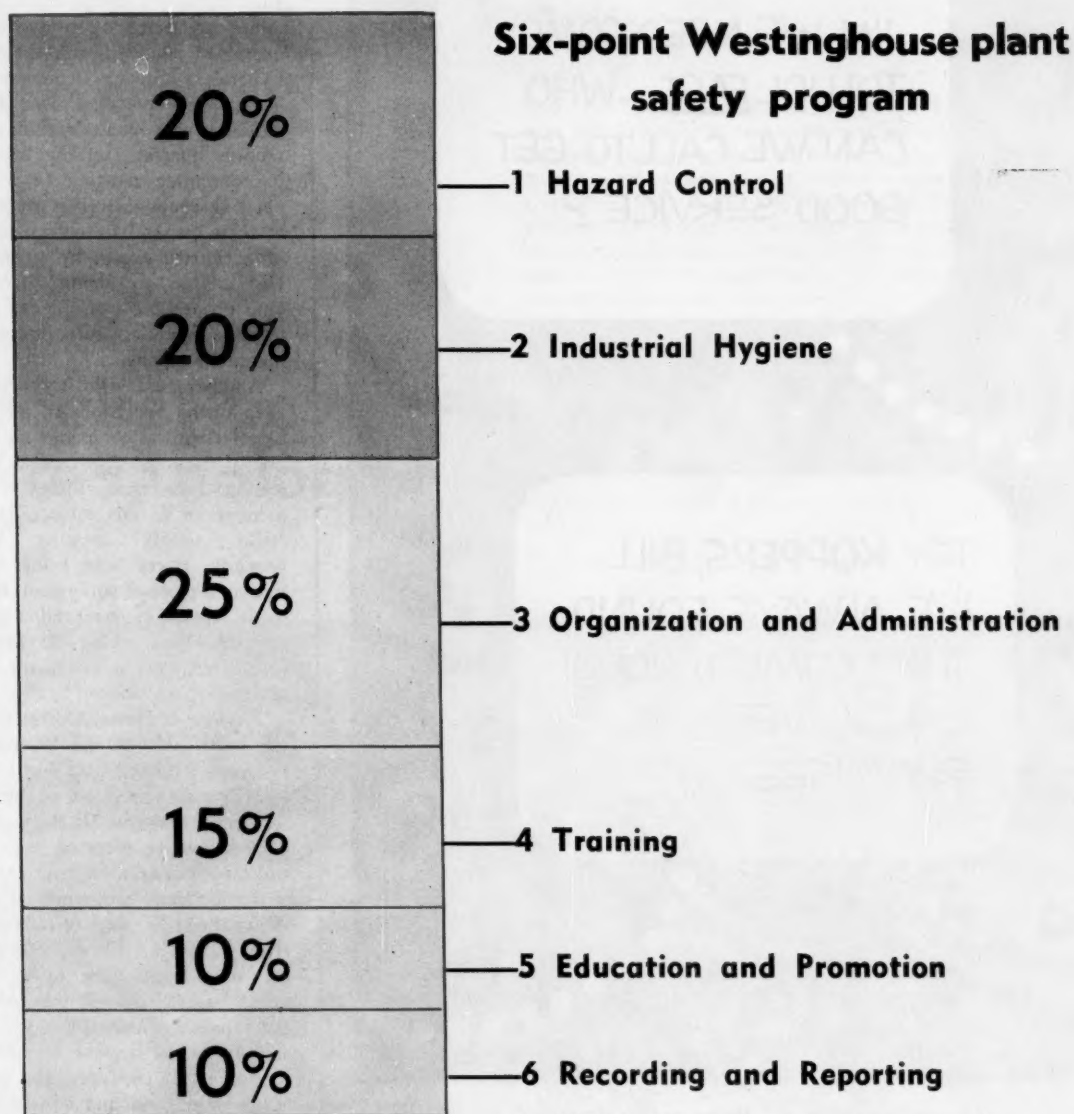
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PRODUCTION



Big Switch in Safety: More Engineering

The chart above represents the latest—and probably most unequivocal—answer to a question that's being asked more and more by chemical plant management: How should the total safety effort be broken down? It was given just recently by Henry Duffus*, accident prevention administrator for Westinghouse, who puts it this way: "Forty percent should be spent on the basic engineering aspects of the job."

Most safety experts concede that Duffus' figures afford a realistic yardstick by which they can take the

measure of their own safety campaigns. Some quarrel with the basic premise, contend that it just isn't possible to lay down one set of figures to cover all possible programs. But there's a growing, vocal school of thought that agrees wholeheartedly on the approach.

Members of the school reason like this: technology has advanced so far and fast that even the most skilled engineers are unable to anticipate how humans will react in the new environments. Consequently, they see the need for a specialist, a safety member on the engineering team.

Arthur S. Johnson, vice-president, engineering, of the

*Before the Chicago Chapter of the American Society of Safety Engineers, of which Duffus is national president.

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TOLUOL FAST...WHO
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KOPPERS
COAL CHEMICALS

PRODUCTION

American Mutual Liability Insurance Co., at the last annual meeting of the American Society of Safety Engineers, expressed that thought this way: "There's a growing tendency to forget the real objectives. Too many are piddling with contests and accident records quarrels, settling for a safety committee meeting or a routine plant inspection, trying every means at their disposal to reduce the score of accidents, except by engineering." His charge to them: "Contribute your proper share of engineering skill to make operations safe, or quit claiming to be engineers."

Another man, who is charged with keeping the operations of one of the bigger chemical companies safe and is one of the most respected in his profession, goes even further. "There's a lot more to this subject," he says, "than simply training workers properly. Every time I see a safety sign on a piece of equipment, it means to me that the engineer didn't design it properly. He's asking the worker to take care of the safety factor that he left out of the design."

Breaking It Down: Duffus says that the basic goal of the Westinghouse system is to make sure that adequate emphasis is placed on all phases of accident prevention. He thinks that the 40% should be spent on hazard control and industrial hygiene. Although a 50-50 split between the two is shown, he feels this may vary with the type of plant operations, although the two should still come to 40%. The term "hazard control" was picked to encompass mechanical hazards in general. Industrial hygiene connotes any condition that endangers the workers' health (e.g., acid and solvent fumes, certain dusts).

Selling the Chief: A logical extension of this school of thought places on the shoulders of the line supervisors more of the responsibility for indoctrinating workers into safe working habits—on the theory of selling the chiefs to sell the Indians.

This is what Du Pont does successfully. For instance, Gerald Gordon, psychiatrist in the firm's medical division, reports that nothing improved the safety record (the worst in the company) of one maintenance and construction group until the superintendent and supervisors were told they must accept the direct responsibility for the safety of the men. Supervisors

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Extreme environmental conditions are simulated in the laboratory or encountered in actual field tests on the firing range at West Hanover or the 1900-acre test range at Halifax, Mass. Here, too, AP&CC will extend its facilities for the investigation and development of TRONA* boron, lithium and perchlorate chemicals in high energy fuels.

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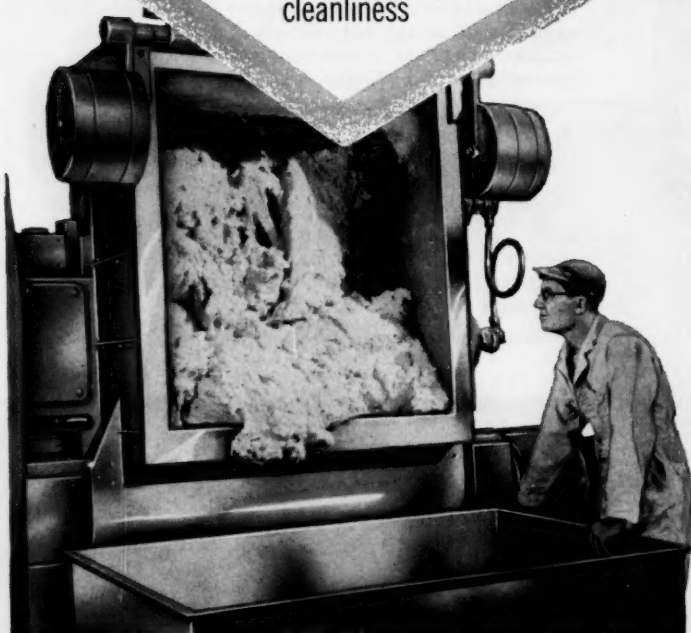


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PRODUCTION

were warned that their performance would be rated "unsatisfactory" as long as unsafe acts were tolerated. During the next three years, this group set what Gordon says might be the world's record for safety in construction and maintenance work.

What is shaping up then is a sharp change in the concept of safety administration. Line supervisors would take on more responsibility for workers' safety training; the safety department would concern itself more with the basic engineering considerations of safety.

But there's a difficulty in doing that, too. For many firms have trouble attracting the high-caliber engineers necessary to perform that type of job. In the past, the safety engineer has not held—in some firms—the stature of other engineers. That's because some firms, in driving to fill their needs, have unconsciously put the safety engineer at the bottom of the totem pole, made the other jobs more attractive.

Merck solved the safety engineer problem 15 years ago, taps chemical engineers with eight or nine years of production or engineering experience for top safety jobs. The firm looks at safety jobs as a stepping stone giving the engineer a broader outlook and helping to prepare him for management responsibility. The assignments aren't considered permanent, although they usually last several years. And it helps to put both freshness and engineering into safety.

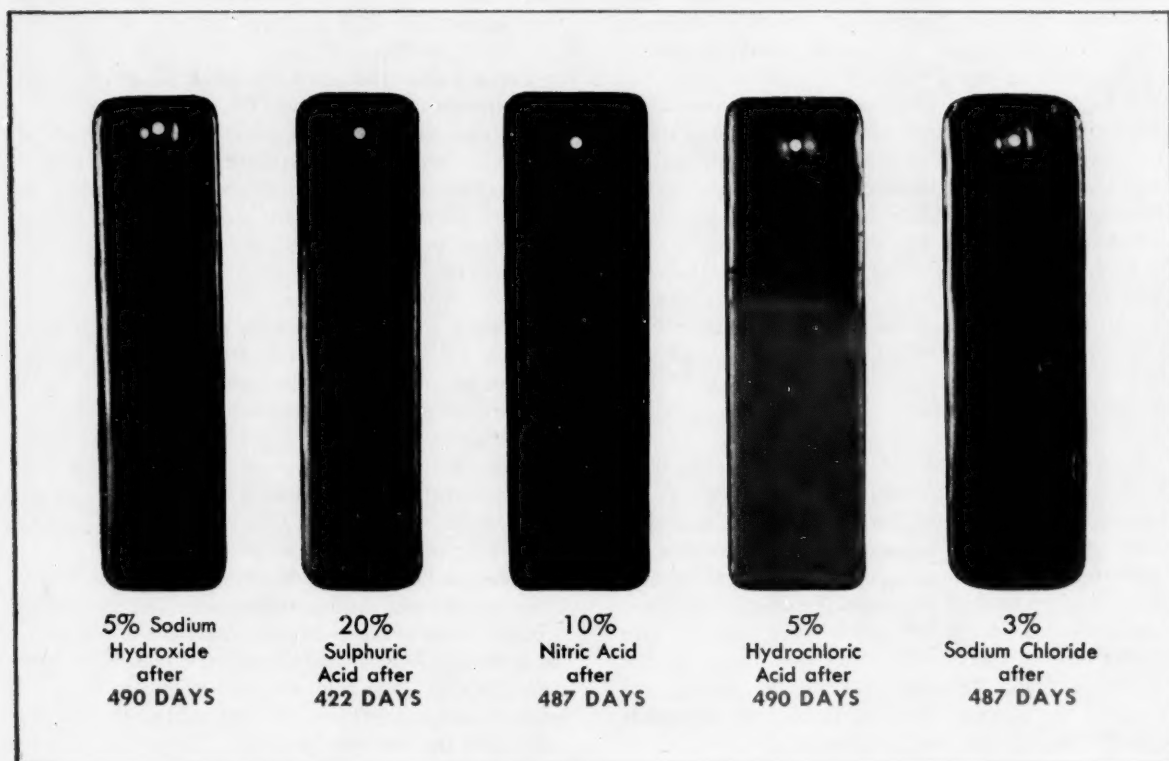
Help for Supervisors

Next month, the American Management Assn. pays tribute to the line supervisor's ever-increasing stature as a member of the plant management team. It will offer for the first time a three-week Supervisory Development Course.

Starting on Sept. 9 at the Savoy-Plaza Hotel in New York City, the first-week program covers the supervisor's scope of responsibility; the second week will be devoted to the application of controls (i.e., production planning, cost, quality, maintenance and personnel). The final week will begin (following a recess) Oct. 21, deal with human-relations problems.

The course will be repeated at the Penn Sherwood Hotel in Philadelphia starting Oct. 7, and again in January.

Look for results like this when you test **TARSET[®]** immersion panels!



THE unretouched photographs above tell their own dramatic story about the ability of Pitt Chem *Tarset* to resist chemical corrosion! In each case, the test panel was removed from the immersion vessel, rinsed under cold water, wiped lightly and photographed. Several of the panels exhibited slight staining. But *none* of the panels showed any perceptible effect of the reagents on the *Tarset* coating!

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If you have a stubborn corrosion problem in your plant, we invite you to investigate *Tarset* today. We will be glad to send you immersion performance data . . . and any other technical information you may need.



WSW 6771

PRODUCTION EQUIPMENT

Plastic Piping Systems: Three firms have come up with new items for use in plastic piping systems:

- Valcor Engineering Corp. (Kenilworth, N.J.) has developed a new all-plastic solenoid valve series for handling caustic, acids and other corrosive fluids without contact with metal parts. Called the SV-1500 series, the valves operate from any position, require no fittings. Orifice sizes: up to 1/4 in.

- Resistoflex Corp. (Roseland, N.J.) offers pipe and fittings of high-density Teflon jacketed with seamless steel pipe for handling corrosives under conditions of high temperature and pressure. Tagged Fluoroflex-T-S, the new pipe assemblies are available in 1-, 1 1/2-, 2-, 3- and 4-in. sizes. A 6-in. size will be out shortly.

- Acme Rubber Mfg. Co. Div. of Acme-Hamilton Mfg. Corp. (Trenton, N.J.) has developed a complete line of polyethylene pipe and fittings designated N.T. Flex. Installation is simplified with the use of insert-type fittings and clamps. Sizes: 1/2, 3/4, 1, 1 1/4, 1 1/2, 2 and 3 in., with pressure ratings from 55 to 100 psi.

Hydraulic Drive: The new Type W hydraulic drive available from The Pfadler Co. (Rochester, N.Y.) features wide speed and power range, compactness, silent operation and component interchangeability. W drives are rated to carry capacities beyond those normally required in smaller reactors. Standard drives have constant-speed sheaves. Variable-speed sheaves give greater agitator speed, with ranges from 600-120 rpm. to 100-20 rpm. With double reduction gearing and flange-mounted motor, the drive is available for speeds from 525 to 7.3 rpm., in 27 increments.

Pressure Transducer: A new pressure transducer that operates continuously at temperatures from -65 to 300 F, with less than 1.0% deviation, is now being produced by Edcliff Instruments (Monrovia, Calif.). Offered in gauge and absolute units, the potentiometer-type device is recommended for corrosive fluid and gas systems.

Hose Ramp: Lite-Line Metal Industries Div. of Copperloy Corp. (Cleveland, O.) now makes its portable magnesium hose ramp with a cast, one-piece, magnesium underframe to provide greater strength without increase in weight. The ramp, designed to form a smooth roadway for vehicles to pass over hoses, is now made in two sizes, also. One, for 3-in. hoses, weighs 25 lbs.; the other, for 4-in. hoses, weighs 42 lbs.

Tank Gauge: The Oceco Div. of The Johnston & Jennings Co. (Cleveland, O.) says its No. 30 tank gauge has several new design features, including easy installation and adaptability to remote reading. The gauge fully compensates for the weight of stainless steel measuring tape. Aluminum housing can be filled with light oil to prevent corrosion of parts.

Remote Valve-Positioning: A new electrical control, called Val-Con, is offered by Sparton Controls System Div. of Sparton Corp. (Jackson, Mich.) for remote valve positioning. The 6-in. meter has upper- and lower-limit signals in addition to a scale that enables the operator to determine the exact valve position. An audible alarm may be coupled in. Over-all system accuracy: 2%, with repeatability of 1/2%, sensitivity of 1/4%.

Check Valve: The new CPV check valves offered by Combination Pump Valve Co. (Philadelphia) are said to eliminate line surges, back-drops and false registry on meters. Spring-actuated internal disc closes as soon as flow ceases, does not depend on reverse flow for shut-off. Metal-to-metal and plastic-to-plastic seating is available in standard-size valves from 2 to 18 in. for pressures to 2,500 psi.

Ceramic Fiber: The Carborundum Co. (Niagara Falls, N.Y.) is making its Fiberfrax, aluminum silicate fiber, in new textile forms including roving, yarn, cord, rope, woven tape and broadwoven fabrics. Fabrics cover the 15- to 74-oz./sq. yd. weight range. Approximately 15% organic fiber is used in manufacture of the textiles, may be heat-treated if required. Fiberfrax will withstand temperatures in excess of 2,000 F.

Hydrogen-Peroxide Handling: A hose capable of handling concentrated hydrogen peroxide without causing decomposition of the hydrogen peroxide is a new offering of Hewitt-Robins, Inc. (Stamford, Conn.). The hose comes in sizes up to 6-in. I.D. and lengths to 50 ft., is made of fabric-reinforced silicone rubber that is not affected by the hydrogen peroxide.

Pilot Valve: The Hagan Remote Mounted Positioner, a new high-capacity relay pilot valve now available from Hagan Chemicals & Controls, Inc. (Pittsburgh), converts 0-30 psig. input-air signals to 150 psig. pneumatic or hydraulic signals for actuating power pistons, diaphragm motors and rotary vanes. The compact, low-cost unit permits a wide choice in selection of power pistons, is used more conventionally for positioning large butterfly valves.

Sterile Storage: Barnstead Still & Sterilizer Co. (Boston, Mass.) is out with a new distilled-water storage tank with built-in ultraviolet light for continuous sterilization. Capacities: 5-1,000 gal.

Reducing Valve: The Fisher Governor Co. (Marshalltown, Ia.) has started production of an improved version of its pilot-operated reducing valves for steam service. Called Type 92B, the new unit is completely self-operating, obtains pilot medium directly from the inlet. The usual problems of steam regulation—clogged orifices, sticky valves, diaphragm rupture—are minimized by the design, says the firm.

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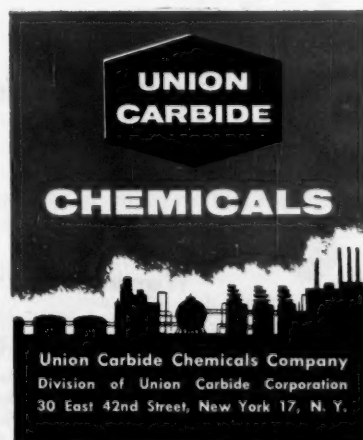
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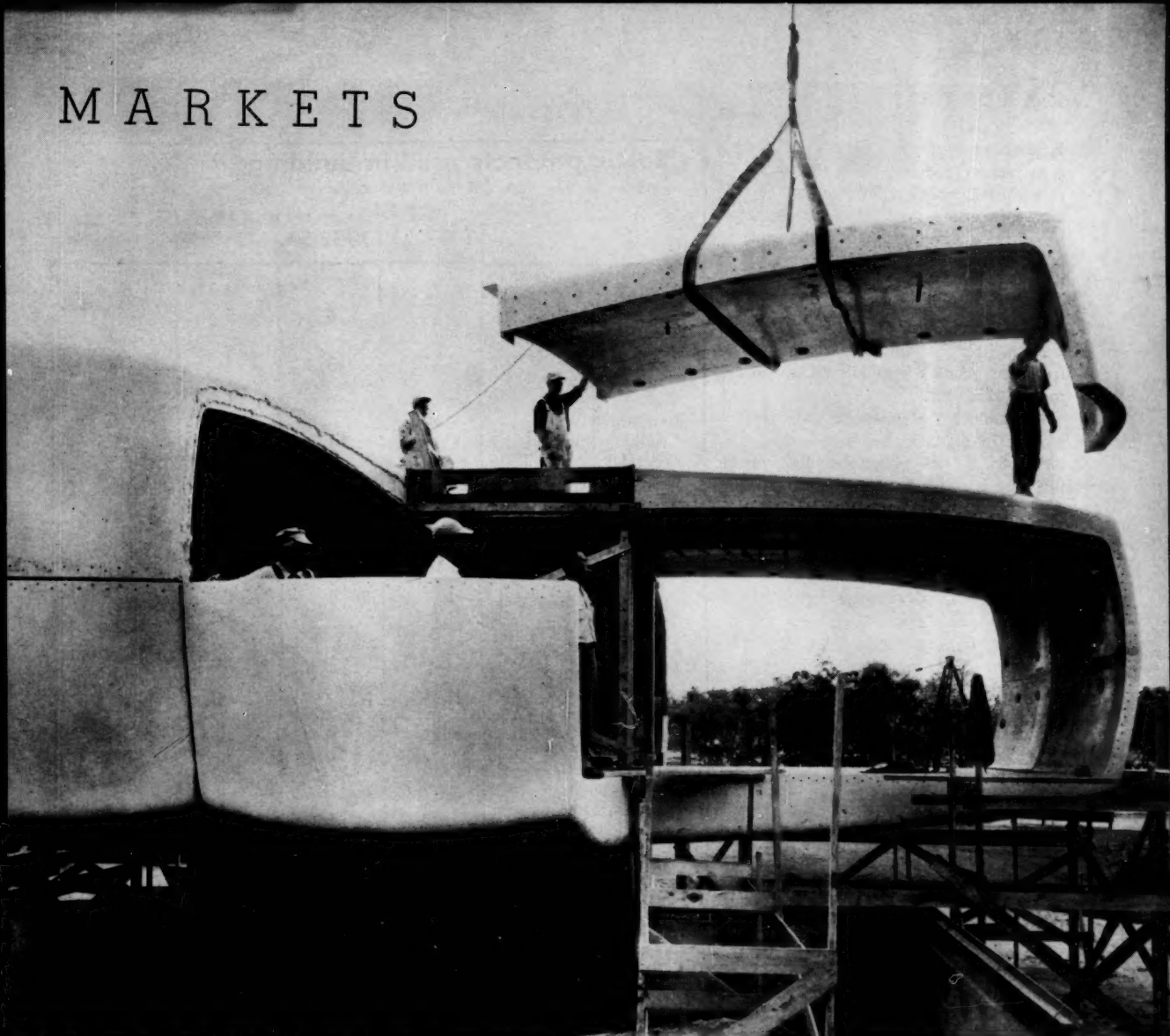
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MARKETS



Building Monsanto's 'House of the Future'—a possible plastics prototype with a big 'if.'

Building Codes Stymie More Plastics Use

U.S. plastics marketers aren't noticeably exuberant about this year's expected record consumption of some 540 million lbs. of their wares by the nation's construction industry. Why? Because a 29-million-lbs. gain over last year's demand—though sizable, on volume basis—represents only a disappointing 5.6% increase.

What is hampering the growth of this potentially gigantic plastics outlet? Part of this year's small consumption increase is, of course, attributable to a general slack in the building business; but other problems also plague plastics sellers.

For one, the war-born idea that

plastics are at best "good substitutes" for more orthodox building materials persists despite a host of educational campaigns. Building codes frequently road-block effective utilization of new plastic materials. Engineers and designers are accused of being woefully unaware of the properties and versatility of plastics, are confused by plastics terminology. By the same token, plastics producers, too, have failed to learn the language of the engineer and the designer.

That something is being done about the producer-engineer-designer impasse is evidenced, for example, by the program scheduled for a forthcoming

(Sept. 17-18) plastics meeting at Washington University (St. Louis). Sponsored by the Building Research Institute, the session will be devoted to "Plastics for Roof Construction," and will be aimed at building contractors, engineers and architects as well as at producers and fabricators of plastic construction materials.

An understanding of other problems that beset this segment of the plastics industry is aided by a look at the end-use breakdown for construction plastics, and at current trends in the acceptance of plastics into local building codes.

Building Breakdown: Most of the

MARKETS

large-volume plastics outlets in the construction industry will this year rack up relatively small percentage increases in some cases, actual declines in others. Consumption of vinyl and polyethylene in wire-coating materials, for example, is expected to climb about 5%—from 82 million lbs. in '56 to 85 million in '57. Use of styrene acrylics in paint will increase 3%—from last year's 87 million lbs. to 90 million this year.

Consumption of phenolic and urea plastics in plywood bonding is dropping off; the 82-million-lbs. demand this year is about 5% less than in '56. And styrene and vinyl wall tile and covering will also slip—about 2%, from 61 million lbs. to 60 million lbs.

Consumption declines are anticipated for materials that are now well established in construction uses because they no longer exhibit the initial rapid-growth rates characteristic of relatively new uses, hence are more sensitive to the ups and (in this case) downs of the building business.

One significant exception is vinyl flooring, where already-sizeable consumption (63 million lbs. in '56) is expected to increase by a healthy 11% to 70 million lbs. this year.

Here's how plastics consumption in other construction uses will fare in '57, compared with '56 demands: polyesters in structural panels will jump 36%, from 11 million lbs. to 15 million lbs.; styrene, vinyls, and acrylics in lighting fixtures will increase to a total of 16 million lbs., from 13 million in '56—a 23% step-up. Fast-growing, too, is use of polyethylene, phenolics and styrene in moisture barriers and insulators; consumption of these plastics, as a group, will rise about 19% to a total demand, in '57, for some 49 million lbs.

Approximately equal percentage gains are expected this year for phenolics and melamine in laminates for tabletops, etc. (10%), and for polyethylene and vinyl piping (11%); demands forecast for these groups are 33 million and 20 million lbs., respectively.

Consumption of plastics in each of the remaining two categories is at a temporary standstill. No gains are expected this year in use of phenolics and styrene in wiring devices (9 million lbs. used in '56), or for the same plastics in bath and plumbing fixtures (10 million lbs.). The reason in the

Plastic products used in building

(approved by New York City since 1947)

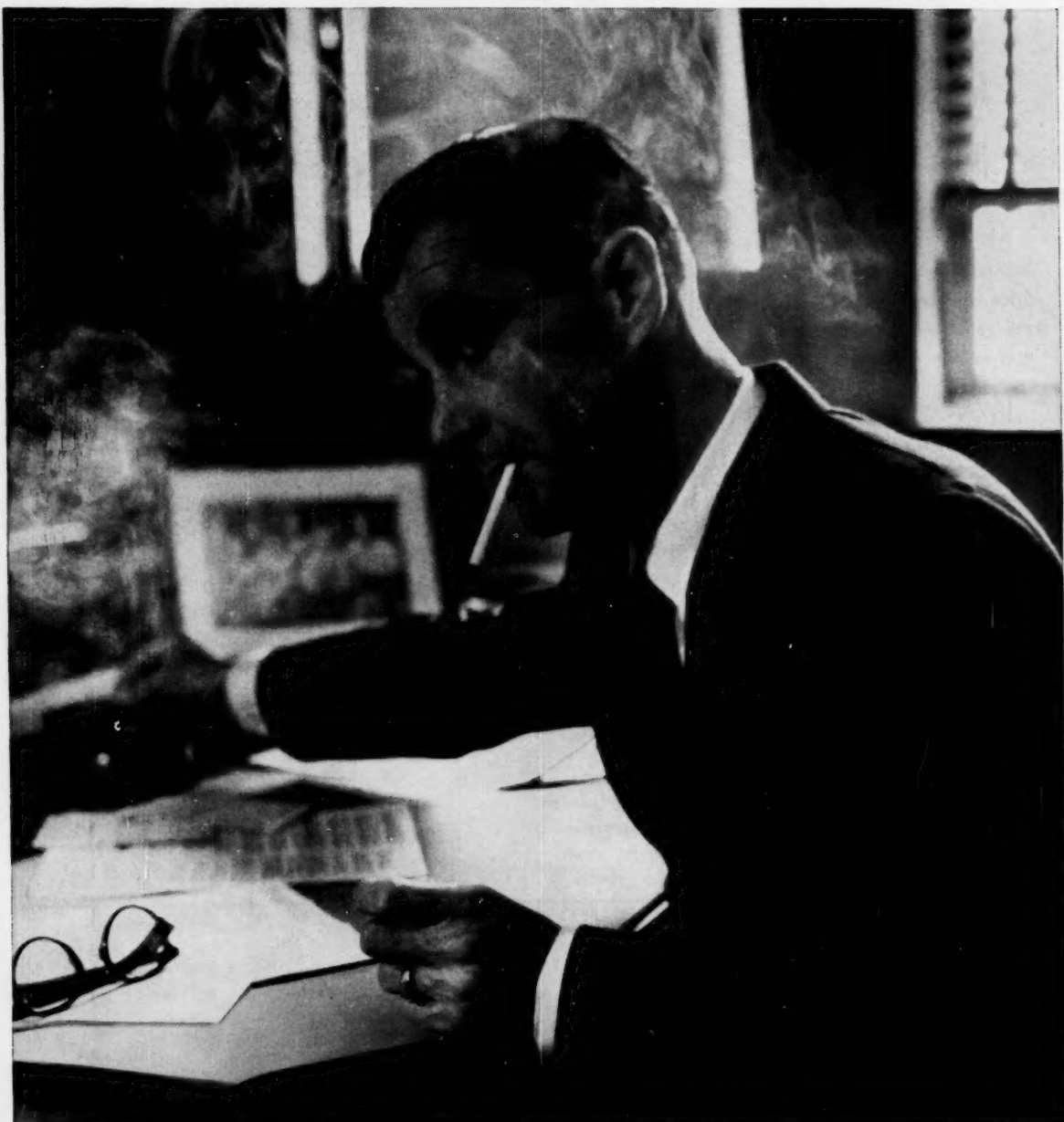
	1947-51	1952-56	Jan.- May '57	Total
Acoustical material	1			1
Adhesives	2			2
Air-entraining agents (in portland cement)		6	1	7
Bonding agent (for plaster, concrete)		3	1	4
Built-up roofing material			1	1
Caulking material		1		1
Fiberglass		2		2
acoustical tile				
Fiberglass drapes for stage hanging		1		1
Fire-retardant paint		1		1
Flameproof fabrics (in public assembly)	14	7		21
Flameproof fabrics (in modern folding doors)		7	1	8
Flexible ducts for air-conditioning		2		2
Floor coverings		4		4
Floor tile	1	5		6
Gasket compound	4			4
Interior veneer		1		1
Insulation (Styrofoam)		1		1
Insulation fill on roof construction		1		1
Light diffuser		11		11
Liquid (plastic) paint	1			1
Motion picture screens	2			2
Nylon material (in public assembly)	2	1		3
Plasticizer in concrete		1		1
Sign (exit and safety)	1			1
Vacuum breaker (check valve)		1		1
Wall covering material	6	10	4	20
Wall surfacing materi- al in fireproof build- ings			1	1
Wall tile			1	1
Waterproof membrane material		2		2
Total				112

case of plumbing fixtures hinges on difficulty in getting the appliances approved in local building codes—a long, drawn-out process because the code in each city, village and hamlet must be considered separately.

Gotham Plastics Guide: Although building codes do vary from area to

area, trends in the acceptance of plastics for construction purposes in large cities can serve as useful guides, not only for fabricators and building contractors but also for producers of primary plastics.

Such a survey, listing 112 plastic products (see chart, above) approved



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MARKETS

Plastics used in building products

(approved by New York City since 1947)

	1947-51	1952-56	Jan.- May '57	Total
Vinyl	13	25	2	40
Vinyl chloride	6	4		10
Phenol resin	1			1
Thermoplastic resin	1	2		3
Resin and rubber	1			1
Thermosetting resin	1			1
Melamine formaldehyde	1			1
High-pressure laminated plastics	1			1
Polyvinyl chloride	1	4		5
Vinylidene chloride	1	2		3
Nylon	2	2		4
Combination of resins	5	2		7
Glass fibers		4		4
Phenol formaldehyde		1		1
Polyvinyl acetate		3	1	4
Rigid vinyl		11		11
Expanded polystyrene		1		1
Resinous elastomeric compound		1		1
Neutralized vinsol resin		5	1	6
Plasticizer		1		1
Miscellaneous		1	2	3
Polystyrene			1	1
Epoxy resin			1	1
Total				112

for use in New York City (during the 10-year period from Jan. '47 to May 21, '57), was recently prepared for the New York City board of standards and appeals by Joseph Platzker, New York's former commissioner of housing and buildings.*

During the first few years (1947-49), most of the items winning approval were either wall covering materials or flameproofed fabrics for use in places of public assembly; since then, the list has been expanded, now includes more than 25 different categories.

During the entire 10-year period, flameproofed fabrics (21 in all) and wall covering materials (20) continued to top all other categories in the total number of specific items approved. Next in order of importance are plastic light diffusers, floor tile, air-entraining agents, bonding agents. There

*Free copies of the report may be obtained by writing to the author, at 116 John St., New York 38, N.Y.

were more approvals in '55 and '56 than in any other year, and the number in '57 will likely break these records if all applications pending are tested on time and are found to meet regulations of the city's building code and any special rules set by the board of standards.

Vinyl vs. Styrene: By far the greatest number of products approved to date are made from vinyls (see chart, above), but there are indications now that a shift is under way toward newer materials, especially polystyrene.

Vinyls have figured heavily in the list of plastic materials used to make approval-winning wall covering materials: vinyl resin, vinyl chloride resin, polyvinyl alcohol resin, melamine formaldehyde, epoxy resin, polystyrene. All approved plastic light diffusers are made of rigid vinyl, and air-entrained portland cement products use neutralized vinsol resin.

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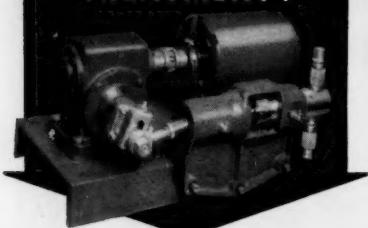
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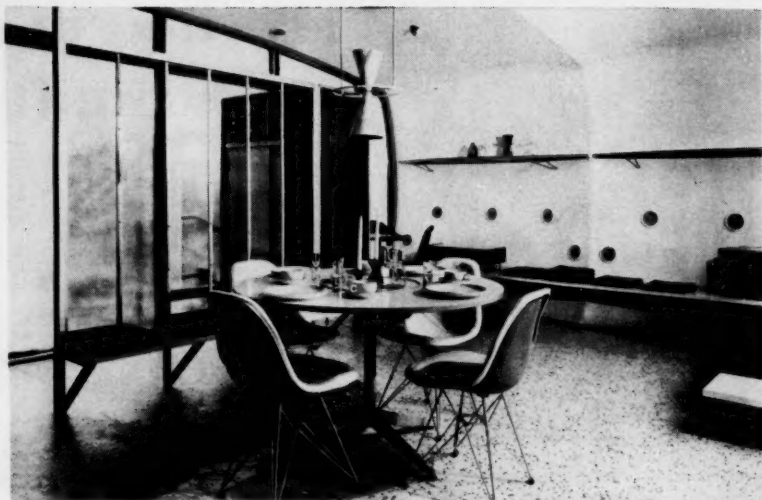
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MARKETS



Living area offers preview of plastics' varied structural uses.

arate category not included in wall coverings) has been approved, although, as Platzker notes, the Society of the Plastics Industry says that since World War II the use of plastic wall tile has soared from practically nothing to more than 90 million sq. ft. a year. The one product approved in this category is made of polystyrene. And only one insulation product (Styrofoam) has been approved so far; yet, a number are being readied for the sales market.

The following breakdown of plastics utilized in building construction materials (approved by New York City) during the past decade further emphasizes the importance of vinyls.

- Thermoplastics: vinyls, 66 items;

vinylidene, 3; styrenes, 3; acetates, 4; miscellaneous, 3; total, 79.

- Thermosets: alkyds, 1 item; epoxy, 1; melamine, 1; phenolics, 2; miscellaneous, 1; total, 6.

- Unclassified: 27 items.

Speeding the approval of plastic construction materials for a multitude of local building codes is but one of many problems that must be solved if the full potential of the building outlet for plastics is to be realized; and that potential market could become a \$2-billion/year business by 1966, according to one industry estimate. That's roughly equivalent to the annual sales level of the entire plastics industry at the present time—big in any league.



In future bathroom, plastic fixtures meld with walls.

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FIRE!



WATER SPRAY PROTECTION Asphalt coating machine at Alabama Pipe Company, Anniston, Ala., has a Grinnell ProtectoSpray System.



AIR FOAM PROTECTION Engine test cell at Trans World Airlines, Inc., Kansas City, Mo., is protected by a Grinnell ProtectoFoam System.



DRY CHEMICAL PROTECTION Hot oil dip tanks at Royal Canadian Air Force Supply Depot, Namao, Alta., has a Grinnell dry chemical installation.



CARBON DIOXIDE PROTECTION Record storage vault at West Penn Power Company, Greensburg, Pa., uses a Grinnell carbon dioxide installation.

Remember, extra hazardous areas, where special protection must be provided to insure against possible serious loss by fire, are fairly commonplace in industry today. Illustrated here are a few of these, along with the fire protection systems recommended to arrest fire. But there are many others, where major or minor supplements to ordinary-hazard fire protection systems are necessary, if trouble is to be averted.

With a full range of equipment, you can rely on Grinnell to give you unbiased recommendations on the system best suited to your requirements. Remember, too, the installation of the proper Grinnell System usually serves to reduce fire insurance premiums drastically, often pays for itself in a few years. So don't delay. For further facts, write Grinnell Company, Inc., 288 West Exchange Street, Providence, R. I. Branch offices in principal cities.



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ALKALIES Caustic Soda, Trisodium Phosphate

ALKANOLAMINES Diethanolamine, Di-Tri-isopropanolamine, Monoethanolamine, Monoisopropanolamine, Triethanolamine

AROMATIC SOLVENTS Benzol, Toluol-Xylol, Heavy Aromatic, SC Solvents #1, 2, 3, 28, 100, 150, and 450

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NAVAL STORES Dipentene, Pine Oil, Turpentine, Gum & S.D. Wood, Rosins, Gum & Wood, Modified Rosins, Resinates

ALIPHATIC-HYDROCARBONS Heptane-Hexane, Mineral Spirits, Odorless Mineral Spirits, Benzene (VM&P) and other standard and custom Aliphatic-Naphthas.

OILS AND FATTY ACIDS Linseed Oil, Talloil, Talloil Fatty Acids

STEARATES Aluminum, Barium, Calcium, Iron, Lead, Manganese, Magnesium and Zinc

WAXES Emulsifiable, Dip Wax, Paraffin, Plastic Waxes, Sugar Cane Waxes

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Market Newsletter

CHEMICAL WEEK

August 17, 1957

Slab zinc consumption may well exceed 900,000 tons this year.

That's indicated in preliminary figures just released by the American Zinc Institute. And further, reports AZI's executive vice-president, John Kimberley, '57 will end up "among the top consumption years in the industry's history."

This rosy prognostication, though based on some solid premises, is surprising in light of the current lag between zinc production and consumption, skittering zinc prices, and the plethora of proposals (including tariff hikes) aimed at succoring the faltering zinc trade (*CW*, Aug. 10, p. 74).

Kimberley bases his opinion on consumption data already available for the first five months of '57 and "conservative industry estimates" for the balance of the year. Through May, slab zinc use amounted to slightly more than 401,000 tons. If the traditional fall increase occurs this year, total '57 consumption, says AZI, "will still be on the order of 950,000 tons." That's off from last year's estimated 988,000 tons and '55's peak 1,119,800 tons, but exceeds the 884,000-ton '54 figure.

Most major copper producers have cut prices again. The latest drop ($\frac{3}{4}$ ¢/lb.) brings the metal's tag down to $28\frac{1}{2}$ ¢/lb., a shade higher than domestic custom smelters' price of $28\frac{1}{4}$ ¢. There's more than an even chance, however, that the latter will officially scale lower—and soon. Trade reports have it that small lots of domestic custom smelter material has already changed hands at shaded prices.

Copper chemicals continue to reflect the soft metals market. Monohydrate copper sulfate is down 20¢/cwt. (to a c.l. price of \$21.50 per cwt., i.e. tag of \$22.25/cwt.), following the midweek shaving of crystal and tri-basic sulfate prices. Reductions on the latter range from 25 to 40¢/cwt., knock the c.l. crystal tag to \$11.95/cwt. and c.l. tri-basic copper sulfate price to \$26.20/cwt.

Prices on copper chloride and copper hydrate were reduced last weekend. The cuts: $\frac{1}{2}$ ¢ and $\frac{1}{4}$ ¢/lb., respectively. New c.l. price on anhydrous chloride is 42¢/lb.; on the hydrate, $48\frac{3}{4}$ ¢/lb.

Word is out of another U.S. phthalic anhydride capacity boost. Reichhold Chemicals' new Azusa, Calif., plant has just gone onstream, following the earlier-this-year startups of expanded phthalic units by Pittsburgh Coke & Chemical at Neville Island, Pa., and by Monsanto at Everett, Mass. (*CW Market Newsletter*, May 11.)

The new Reichhold installation, touted as the first on the West Coast to make phthalic via naphthalene, represents a \$2-million investment, will be able to turn out about 10 million lbs./year.

Market Newsletter

(Continued)

There's a hint of keener competition ahead for West Coast phthalic outlets (boat building, aircraft, building construction industries) in President Henry Reichhold's statement: production capacity not only will be sufficient to meet RCI's needs but also will be large enough to permit sales of the plastics raw material.

Recent aluminum increases are lifting alumina chemical tags.

Reynolds Metals late last week advanced prices on its alumina hydrate and calcined alumina. The former is up \$3/ton, will sell at a bulk price of 31¢/lb., and in c.l. bags at 33½¢.

Calcined alumina is increased by 2¢/lb., will sell at 47½¢/lb. in c.l. quantities.

The toluene market unrest, simmering for some time,

boiled to the surface late last week, resulted in 2-3¼¢/gal. slashes (depending on shipping points) in prices of petroleum-derived material. The industry-wide move comes only a few months after one major petro-toluene producer made an attempt to ease out of a cost-squeeze by raising prices; the hike was later rescinded (*CW Market Newsletters*, March 9, March 30).

Coke-oven operators were undecided over the weekend on whether to emulate the cuts on petroleum-based material, but it appears almost certain that they will post comparable reductions. Stocks of coke-oven toluol are fairly heavy—and have been for months; the new petro-toluene tags match, or are lower than, current prices of coke-oven material at most shipping points.

Spencer Chemical's new nylon plant went onstream

last week at Henderson, Ky. The \$2-million unit will produce nylon-6 from caprolactam, largely for molding and extrusion applications.

Spencer will purchase its caprolactam monomer from Allied Chemical, which makes the material in Virginia. The original process know-how for Spencer's unit came from the Dutch firm, AKU.

SELECTED PRICE CHANGES — WEEK ENDING AUGUST 12, 1957

UP

	Change	New Price
Alumina, calcined, bgs., c.l., wks.	\$0.002	\$0.0475
Aluminum hydrate, heavy, bgs., c.l.	0.0015	0.0335
Shellac, superfine, bgs., 10-bg. lots	0.01	0.24

DOWN

Copper carbonate, 55%, bgs., c.l., wks.	\$0.004	\$0.3235
Copper chloride, cupric, anhyd., dms., wks.	0.0025	0.42
Copper metal, electrolytic, dlvd., Valley basis	0.0075	0.2850
Glycerine, nat., soap lye, 80% tanks, c.i.f., dlvd.	0.0025	0.1575
Toluene, petroleum, indust., Philadelphia, tanks, wks., gal.	0.03	0.31

All prices per pound unless quantity is stated.

QUIZ

For Multiwall Bag Buyers

"How Does Your
Packaging Operation
Rate?"



- 1 Is your bag correctly sized for your product?
- 2 Is your bag properly constructed for your product?
- 3 If loss of product is caused by deterioration, would special protective sheets help to reduce such loss?
- 4 Is the total cost of your bag out of proportion to the selling price of your product?
- 5 Does your product cost warrant redesigning your bag to merchandise your product more effectively?
- 6 Are you using the most economical filling machine available for packaging?
- 7 Are your current suppliers giving you the service you desire?
- 8 Are your suppliers integrated and capable of maintaining dependable service at all times, under all conditions?
- 9 Are your suppliers' representatives qualified to help you with your packaging, sales promotion and marketing?

Perhaps we may be able to help you to arrive at the right answers in order to achieve higher production at lower costs.

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Please have representative call.

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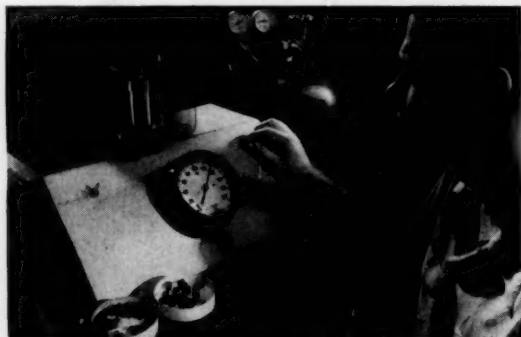
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CW Report

**THIS LETTER
COULD BE
A MILLION-DOLLAR
HEADACHE FOR YOU**

Turn the page to find out why ►

Ideas from outsiders

HERE'S HOW TO PROTECT

- 1— Beware the individual with the bright idea for your company.**
- 2— If not handled right, an unasked-for brainstorm can cost plenty in damages and legal costs. Procter & Gamble is now fighting a \$4-million claim.**

"Dear Sir:

I have an idea that will make a million dollars for your company . . ."

Watch out for this letter. If not handled with care, according to well-formulated company policy, it could be a million-dollar headache for your company. And the probability of your receiving such a letter is greater today than ever before. Entry of chemical firms into direct consumer markets has increased their exposure to unsolicited ideas, increased their vulnerability to costly lawsuits arising from such offerings. In the past 10 years, moreover, the courts have shown increasing willingness to recognize confidential relationships between people who submit the unsolicited ideas and the firms receiving them.

All this adds up to a worsening situation for chemical companies. Not all are equally troubled by the problem. But firms whose products and advertising are beamed to the public are currently receiving from 30 to 1,500 unsolicited ideas each year.

Here's an illustration of the problem. A hopeful "idea man" writes, "Why don't you incorporate X and Y in a product, to do Z?" Several years later, one of the company's researchers discovers how to make just such a product, and the firm markets it. It's mighty tough to persuade the outsider that the new product did not spring from his idea. It's tough to prove that he is not entitled to remuneration. No matter how wild and impractical an unsolicited idea seems, it may some

day prove feasible, as experience has proved.

Right now, Procter & Gamble is faced with a \$4-million lawsuit entered by a woman who claims that in 1952 she gave P&G the idea for Blue Cheer. P&G has lost the first round in the case. Some remaining questions of fact demand a jury trial.

Outsiders who submit unasked-for ideas don't always win compensation in legal actions, but collect often enough to make it important that management, at all operating levels, know how to achieve maximum protection for their firms.

Unfortunately, there are few sources (with the exception of law journals and the cases themselves) to which management men can turn for a guide to drafting policy on the subject. Many companies do not have a stated policy on how to handle these letters. Those that do find it hard to keep management constantly alerted.

The aims of this report are: (1) to brief chemical company management men on the best available practical measures for coping with this problem and (2) to give them a working knowledge of the legal aspects of this subject.

TAKING PRECAUTIONS

The toughest situation arises when a confidential relationship is thrust upon the company. This usually occurs when the idea man sends a letter containing information that could later prove valuable to the

can be dangerous

YOURSELF, YOUR COMPANY.

3— Incidence of these cases, moreover, is growing every year

4— Any management man from board chairman on down can have an unsolicited idea unexpectedly foisted upon him.

firm. Since a company can't very well adopt the expedient of not opening its mail, it must take certain precautions before and after an unsolicited idea letter is received.

In formulating company policy on the subject, thought must be given to (1) the possible value that such ideas might have and (2) whether customer goodwill is involved.

Once a policy has been set, it should be communicated to management at all operating levels, who in turn should communicate it to employees exposed to the problem.

When the company sets up a system for handling outside ideas, it should be recirculated and republished every six months.

Many companies distribute pamphlets or booklets that not only summarize policy on the subject but also include an agreement form, which the idea man is asked to sign. These booklets are sent to anyone who offers an idea and are also distributed throughout the company. In effect, these statements of company policy clearly point out that the corporation does not solicit ideas from outsiders. If the outsider chooses to send in the idea, the booklet states, it must be done on the company management's terms.

Other preventive measures may be taken:

- Maintain a complete collection of samples of the company's present and outdated products, labels, product names, slogans, containers and other miscellaneous

items usually involved in the area of inventive ideas. Should any questions arise on whether or not an idea is new, this company "museum" will help find answers quickly.

- Maintain dated, signed and well-filed notebooks and invention records. These go far toward showing that the company had already obtained the information the idea man seeks to thrust on it. Someone in the firm (preferably a key executive) can be delegated the responsibility of periodically reviewing these notebooks. In this way, at least one top executive always has an over-all picture of what technical information is available in the company.

- Route letters or drawings directly to one person responsible for handling such communications. Caution: such information should be kept away from company engineering and technical staffs, to prevent their being influenced by it.

The person charged with the responsibility of handling these letters should immediately answer the "idea man." What he includes in the answer depends to a great extent on company policy. There are eight possible sound courses of action:

- (1) Refuse to accept the idea in confidence.
- (2) Return all papers, letters and drawings with a statement that no copies have been made.
- (3) Keep all papers, letters and drawings in a closed file until the "idea man" signs an agreement with the firm.

CW Report

1



2



3 VAULT



Memo on Eight Ways to Answer an Idea Contributor

(4) Cite references if the correspondent's information is already known in the art or technical literature.

(5) If publication of the idea is not known, refuse to admit that the information is new, novel and concrete.

(6) Send an agreement form if management thinks the idea is worth further consideration.

(7) Request that the information be resubmitted in the form of a patent application or a witnessed full disclosure.

(8) If management wants to negotiate further, request that the correspondent come in to meet with company officials.

Points 2 and 3 are being used effectively by many companies. But there's conflicting opinion in legal circles as to which of these measures is the better safeguard.

When an outsider writes that he has information that may be of interest to the company (but doesn't reveal what that may be), then management is in a better position to take positive action.

In such cases, the best approach is for the company to immediately answer the letter, sending the correspondent an agreement form built around certain con-

- 1 Refuse to accept the idea in confidence.
- 2 Return all papers, letters and drawings with a statement that no copies have been made.
- 3 Keep all papers, letters and drawings in a sealed file until the contributor signs an agreement.
- 4 Cite references if the information is already known in the art or literature.

ditions. The company should state that it will consider the idea only if:

(1) Submitted information is in writing, preferably a patent application or, at least, a dated and witnessed full disclosure.

(2) The company does not have to agree to hold the correspondent's information in confidence.

(3) The sender keeps an exact duplicate of material he has submitted.

(4) The company is not obligated to reveal its own knowledge, experiments or ideas on the subject.

(5) The company is allowed to reserve the right to negotiate for payments after it sees the correspondent's information. Maximum payment may be specified.

(6) The company is not bound either by contract or by confidential relationship if a patent issues, except for possible future agreements on licenses.

(7) The company is under no obligation to consider the information other than to say whether it's interested.

(8) The company is not asked to admit that the idea is new, novel and concrete.

Here again, these stipulations are offered as a checklist from which one or more approaches may be chosen and embodied in an agreement.

4



5



6



- 5 Refuse to admit that the idea is new, novel and concrete if publication of the idea is not known to you.
- 6 Send an agreement form if the idea is worthwhile.
- 7 Request that the invention be submitted as a patent application or a witnessed full disclosure.
- 8 Request that the contributor meet with company officials if further negotiations are desired.

Only by pinning the idea down by an agreement can company management provide a sound basis for further negotiations. By varying the terms of agreement, management can also encourage or discourage outside ideas.

When agreements like these are sent to the "idea man," they provide a basis for legally protecting the firm. Management is in a better position to enter into suitable contracts should it feel disposed to do so.

The outsider then must decide whether to meet management's terms and submit his information, or abandon his hope of interesting the company in his brain child.

TWO OTHER APPROACHES

Although there is a growing awareness on the part of chemical industry executives that unsolicited inventive ideas must be handled by agreements based on the factors discussed above, there are at least two other approaches in use.

In one, companies offer to buy the information outright (if it interests them, of course), thus completing a bargain-and-sale agreement. In the other, companies put the information in escrow with a third party technically competent to evaluate it.

7



8





In your agreement form, say you'll consider an idea further only if:

- 1 Submitted information is in writing, preferably a patent application or, at least, a dated and witnessed full disclosure.
- 2 Your company does not have to agree to hold the information in confidence.
- 3 The idea contributor keeps an exact duplicate of material submitted for records purposes.
- 4 Your company is not obligated to reveal its own knowledge, experiments or ideas on the subject.
- 5 Your company is allowed to reserve rights to negotiate for payments after it sees the information. Maximum payment may be specified.
- 6 Your company is not bound either by contract or by confidential relationship on rights to a patent, if one results. Exception: possible future agreements on licenses.
- 7 Your company is under no obligation to give more of an opinion on the information than to say that it is, or is not, interested.
- 8 Your company is not asked to admit that the idea is new, novel and concrete.

WHAT'S BEHIND THE LAWS?

Vague ideas are as free as the air. But what if they are presented with written descriptions, chemical formulas or drawings? Then an expressed or implied relationship may arise between the "idea man" and the company. In turn, this may obligate the company.

Assume that someone offers an unasked-for inventive idea to a chemical company. Our hypothetical contributor has no issued patent to sell or exploit. If he does have, he would, of course, have well-defined property rights.

When he has no patent, has not applied for one, or cannot obtain one, he usually tries to submit his idea verbally or by letter to anyone in the company who will listen. If the company doesn't take a stand right from the beginning, the idea contributor then may have grounds to seek compensation later for alleged or actual use of the idea.

To determine whether or not he and the company reached some kind of agreement protected by law, courts examine the facts in every case to determine:

- (1) What was submitted. Was the inventive idea the outsider's property to begin with?
- (2) How the idea was submitted. Was a contract made or implied or a confidential relationship established?
- (3) Who received the idea. Did an "agent" of the company commit his firm?
- (4) What may be recovered as compensation.

PINPOINTING PROPERTY RIGHTS

One of the most important points the courts try to establish first is whether or not the idea was actually the outsider's property. The term "property" is broadly defined here as the right to enjoy or use something. Where inventive property is concerned, the definition conveys an intangible right to an idea—which, of course, is usually an intangible itself. Because of this inborn vagueness, courts have ruled that an idea, to be someone's property, must be secret, concrete, new and novel.

The meaning of each of these four requirements, where inventive property is concerned, is fairly precise.

As a result, these definitions should be clearly understood by management men.

Three Important Definitions: Definitions used here are based on a number of important court decisions.

- **Secrecy**—inventive property, to be secret, must be known to the idea man alone. It cannot be public property. However, the idea can be known but hidden, and the idea man can communicate it to others in confidence for evaluation or possible negotiation.

Although mere ideas are often easily come by, when the person offering them exerts effort to assemble the information in a usable, and perhaps unique, form, he may have secret property. This is particularly true if he shows no intention of abandoning his secret by, say, publishing it or dedicating it to public use.

On the other hand, if the supposed invention is commonly known to others in the field, or known to the company or its employees, then it is no longer the kind of property the courts protect as secret. In other words, if the process or idea is common practice, common sense, or common knowledge, even though it is not practiced by the company until after receiving it, the idea man has not established the secrecy requirement for establishing property rights.

- **Concreteness**—the second requirement for inventive property is that it must be submitted to the company in concrete form. Concreteness, like secrecy, cannot be easily defined, on a legal basis. In fact, the courts are much more willing to discuss what is not concrete.

Even though no quotable, clear-cut definition has developed, some elements of concreteness are apparent.

To be concrete, an inventive idea must possess basic physical elements—it can't be one that is stated only in abstract form. The idea must be worked out in some detail, form or purpose. The "idea man" should have some control over the idea and should not have to depend on the concurrence of many minds for its success.

Most court cases in which concreteness is the determining factor are almost entirely concerned with promotional or literary ideas because their concreteness is tough to establish. Inventive ideas, on the other hand, normally come to management's attention as drawings, chemical equations, flow diagrams, etc., and are usually developed in more detail than, say, a mere notion for a radio program. So the question of concreteness arises less often.

Nevertheless, chemical firms are becoming more and more alerted to the importance of establishing the concreteness of an inventive idea. Companies' requests that inventive ideas be submitted in the form of a patent application help both the outsider and the company. Such an application meets the requirement of concreteness; thus the firm has solid proof of what was obtained.

- **Newness and Novelty**—an inventive idea, to be property, must also be new and novel.

Knowledge that is fairly well known, or that can be

deduced from other known facts, isn't novel.

In this respect, it's important to note that the courts have been unwilling to apply the same test of novelty that the U.S. Patent Office applies in determining the patentability of an invention. When courts consider the newness and novelty of an idea, the "flash of genius" element is entirely lacking.

On the other hand, the value of an idea is never destroyed simply because the means to it are obvious, or that the experimentation involved is simple. Facts or ideas of great value may long live unnoticed or unused. For that reason, novelty in inventive property cases cannot be equated with novelty in patent suits. Showing prior art completely defeats any attempt at patenting an invention.

What's more, the showing of a great expenditure of time, effort and money is of no avail in patent procedure, once the novelty angle has been defeated. This isn't the case in establishing inventive property rights. Here, the courts apply tests to determine: (1) the effort the inventor has expended; (2) the potential value of the idea to the firm; (3) the extent to which the idea was known. The courts have called secret a process that actually had been patented but was not generally apparent to people in the field.

Novelty, then, lies somewhere between (1) what is completely new and patentable and (2) what may be known in prior art but obscured, yet falls short of being obvious or generally known.

Thus, the broad meaning of property, when used today in connection with inventive ideas, can be summarized this way: *An idea need not be completely new or novel as defined by patent law, but it cannot be common knowledge. The idea must be presented in an understandable, organized form and must have some feasible or practical purpose.*

CONTRACTS AND CONFIDENCES

Once someone actually has established property rights to his idea, the court next wants to know whether the company accepted the idea in a way that warrants his seeking compensation.

There are two general theories in law under which compensation may be sought: tort theory or contract theory.

Tort Theory: This applies if the company violates an obligation to the idea suggester or wrongs him by breaking confidence. Contract theory applies when both parties have reached agreement (either verbally, on paper or by their actions).

If someone tries to recover under the tort theory of law, he must show that he established a confidential relationship with the company. A confidential relationship can be defined in terms of three elements—none of which needs to be expressly stated so long as it can be reasonably inferred. (1) The idea suggester must show that he trusted the company and its conduct so



Meet the Author

Bessie Lepper (L.L.M., Northeastern University, '56), originally a physical chemist (A.B., Oberlin, '40), pursued her interest in law to become a member of the Massachusetts bar. In addition, she is registered to practice patent affairs in the U.S. Patent Office.

Miss Lepper worked nine years at Arthur D. Little, Inc. (Cambridge, Mass.), prosecuting patent applications, advising ADL scientists on legal matters, serving in a liaison capacity between the firm's patent

group and its inventors.

Miss Lepper has also been with the National Research Council, researching undersea power and propulsion problems for the U.S. Navy. During the hectic procurement days of World War II, she helped solve chemical supply tangles with the War Production Board and U.S. Dept. of Commerce.

Her latest law degree is in the subject area of this report—the submission of inventive ideas by people outside companies.

far as it affected him; (2) he must show that the company was aware of the trust and accepted it expressly or by its conduct; and (3) he must show that as a result of those two factors, the company was obligated to protect his idea. When these three elements are present, there is an implied confidential relationship.

Although the courts may go no further on this question than to say that a confidential relationship was established, they do consider other factors.

How the idea was used and how closely the company's version resembles the one originally submitted both have some bearing on whether a confidential relationship was established.

So do the comparative skills of both parties and their relative positions. Take this case, for example:

Two chemists who had worked on a problem for Gallowhur Chemical Corp. (Ossining, N.Y.) and later disclosed it were held by the court to owe a confidential trust to the firm. The court pointed out that both chemists were mentally equipped to recognize the element of secrecy—one because of a written agreement with Gallowhur, the other because he was aware of the objectives normally inherent in his work.

The company must consent to having a confidential relationship imposed on it. If a secret is submitted to a company despite its protest that the information will not be held confidential, an idea suggester cannot claim, successfully, that there is a confidential relationship.

Neither will it arise if the company is unaware of the confidential nature of the information—an important safeguard to companies constantly faced with the problem of handling unsolicited ideas.

What about the company that is not involved in the original confidential relationship, but gets information second-hand? It's fairly well recognized in law that a third party that unknowingly or mistakenly receives secret information is not liable for its disclosure or use (at least until it is made aware of the secret nature of the information).

Confidential relationships can be terminated or even defeated. One way to do this has already been mentioned—i.e., the corporation may refuse the confidential relationship and thus defeat it at the outset. Or the alleged secret information offered may be shown to fall short of meeting the definition of inventive property and therefore be incapable of forming the basis of a confidential relationship. Then again, the corporation may show that the idea was already known to them. The idea suggester may publish his information and take initiative to dissolve his trust with the company.

Contract Theory: The contract theory applies even though the idea man and the company may unknowingly enter into a contract. Courts generally recognize three types of contracts: expressed, implied-in-fact, implied-in-law.

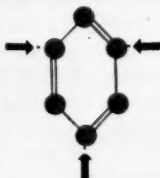
Expressed contracts cause few problems because, in effect, the idea man says, "I will give you such-and-such information if you pay me so-many dollars, or such a percent of profits." A contract is formed if the company accepts.

But where no such agreement is reached and offers and acceptances aren't made in such definite terms, an implied-in-fact or implied-in-law contract may arise. Then the courts must look carefully at the facts.

AERO[®] CYANURIC CHLORIDE

offers 3 ways to touch an "untouchable"

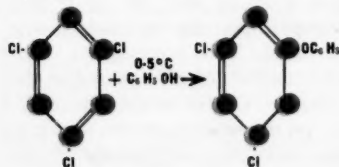
As you undoubtedly know, the triazine ring is as stable a structure as can be found in organic chemistry—"untouchable" except under the most extreme reaction conditions. Yet this uniquely stable ring can be easily incorporated into a wide range of useful intermediates. Simply start with Cyanamid's Cyanuric Chloride and benefit from the acid chloride reactivity of the three chlorine atoms which may be replaced selectively.



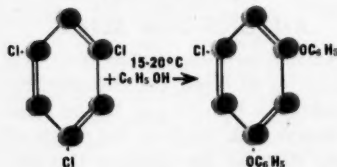
Temperature tailors the molecule

The beauty of starting with cyanuric chloride is that in many reactions, mono-, di- or tri-substitution of the chlorines can be predetermined by control of reaction temperatures. Naturally, partially substituted cyanuric chloride can be further reacted to add other groups. A tailor-made molecule results with the reaction characteristics you want. And it's all nicely tied to that "untouchable" triazine ring.

For example — you may want a monoaryloxy or diaryloxy derivative. With phenol, the monoaryloxy derivative is formed at 0-5°C.

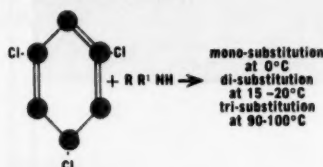


while in the 15° to 20°C range, the diaryloxy derivative is



and similarly, tri-substitution occurs at 30-40°C.

Amines may also be added selectively through temperature control. For a typical amine:



These phenol and amine reactions are described in detail in the booklet, *Aero Cyanuric Chloride*, along with reactions and reaction techniques involving alcohols, sulfides and mercaptans, grignard reagents, aryl halides, carboxylic acids and many other reagents.

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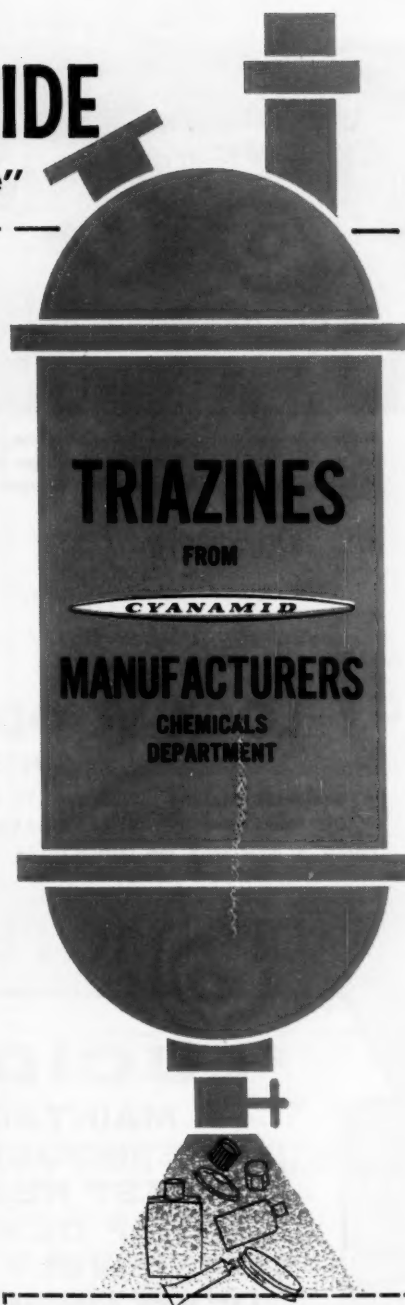
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Be advised, then, that Cyanamid has recently again lowered the price, and that practical applications of cyanuric chloride are growing rapidly. You'll find its derivatives in resins and plastics, dyes and optical bleaches, insecticides — in fact, just about everywhere.



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Gentlemen:

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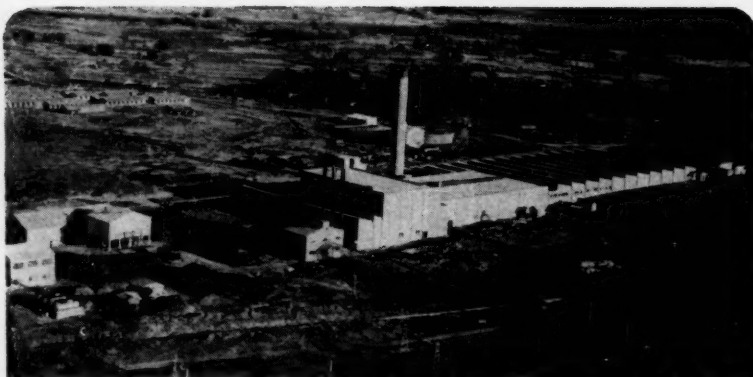
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All sorts of situations could arise that could lead to an implied-in-fact contract. In one case, for example, an employee offered to show his employer how to save money by redesigning some machinery. The employer intimated that he would compensate the employee if the design worked. It did, and the company saved about \$1.5 million over a period of time. No contract resulted from the employee's offer to devise the design, or from the employer's agreement to use it. Promises made at the time were too uncertain. But a court found that there was a meeting of the minds, that a contract existed when the employer accepted and used the idea.

Words can imply willingness to pay for information even though they appear to say otherwise.

In other cases, courts have found that no contracts had been made because one or the other party had not fulfilled his end of the bargain.

If no written agreement exists, then the idea suggester must show that he submitted his idea with the intention of being paid for it and that the company knew of this intention or should have inferred it from his actions or statements.

An implied-in-law contract arises when both parties do not reach mutual agreement.

It's important for chemical company management to note that the idea involved in the contract sometimes does, and at other times does not, have to meet the newness, novelty and concreteness requirements for intellectual property.

When two parties discuss contract terms and reach definite agreement on payment for an idea, the court does not require that the material be new and novel. This more-or-less well-established rule of law is based on the old maxim: Let the buyer beware!

If, on the other hand, the idea suggester seeks recovery because of unjust enrichment under an implied contract, the law usually holds that the information must be new and novel.

ANYONE CAN SLIP

Anyone in a company, from top executives on down, can unknowingly commit the firm to pay for an idea.

There's little doubt in the minds of those studying the problem that the general law of agency applies—courts have ruled that an employee can serve as a company's agent even though the

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Chemical Executive Wanted. 25-30—Marketing and Sales Development for established small company undergoing "growing pains". Keen business sense essential. Salary plus substantial profit participation. Aceto Chemical Co., Inc., Flushing 54, New York.

Midwest pharmaceutical firm with 200 employees is looking for a Research Director. Applicant must have Ph.D. Duties involve supervision of Basic, Clinical and Market Research. P-5826, Chemical Week.

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Technical Sales position desired by physical chemist, Ph.D., under 35, with 5 years experience in product development research on polymeric films. PW-5861, Chemical Week.

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company is unaware of his action—
as long as it ratifies the action later.

HOW MUCH IN DAMAGES?

Assuming that the "idea man" has
succeeded in proving his property
rights, has succeeded in showing that
a confidential relationship had been
established or that a contract was
made, what may he recover?

Where a breach of confidential rela-
tionship occurs, he may ask for an
accounting to determine what wrong-
fully accrued to the company and
what loss he sustained.

Where a contract is shown to exist,
the general rules of contract damages
usually apply. He can recover what-
ever he hoped to realize from the con-
tract—within reason, of course.

This may be tough to determine.
Usually the amount of damages is
based on a calculation of reasonable
royalties, reasonable payment for the
man's services, or a percent of the
benefits accruing to the firm.

In other words, where a contract
exists, losses to the inventor govern
the assessment of damages. In con-
trast, where no contract exists, dam-
ages are measured by gains to the
company. Although these are the com-
monly used measures of damages,
total recovery is judged according to
the facts in each case.

THE OUTLOOK

Indications are that the barrage of
unsolicited ideas on chemical com-
panies will get heavier from year to
year. Many factors influence this.

Even if a company takes every pre-
caution in dealing with outside inven-
tive ideas, it's difficult to say whether
it will have relieved itself of possible
future liability. However, manage-
ment will have gone a long way toward
showing that it had no intention of
doing wrong by the "idea man." More
important, the company will have put
a real burden on him to offer con-
trary evidence.

Where he submits unasked-for
ideas, he must be made to realize that
he cannot expect to take advantage of
a company to garner unjustifiable
gains. Even though the recipient of
the idea is a corporation and the sug-
gester of the idea is an individual,
there seems to be no just reason why
he should be able to put the com-
pany at a disadvantage—a disadvan-
tage from which the corporation has
no sure way of escaping, once valu-
able information is thrust upon it.

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	STALEY MFG. CO., A. E. 58 Agency—Ruthrauf & Ryan, Inc.	

CHARTING

BUSINESS

AUGUST 17, 1957

(million tons)

2.50
2.25
2.00
1.75
1.50
1.25
1.00
.75
.50
.25
0



Figures: Smelter basis, from U. S. Bureau of Mines.

U. S. Output Spurs Lead to New High

Despite the ruckus being raised by U.S. proposals to discontinue stockpiling of lead and zinc (*CW*, Aug. 10, p. 99), world smelter production of lead is expected to reach an all-time high of over 2.3 million tons this year. Still top country on the lead production ladder is the U.S.; this year, output should hit 550,000 tons. Australia is in second place, with an estimated output of 260,000 tons, while Russia should be in third place, with production estimated at about 255,000 tons.

But with the U.S. announcement that it may cease stockpiling of lead, this bullish picture may alter con-

siderably. Lead prices have plummeted not only in the U.S. but also in other parts of the world.

Meanwhile, domestic consumption of the metal has undergone a varying pattern. Nearly one-third of lead available is consumed in the production of storage batteries. Use of lead for gasoline antiknock compounds continues its phenomenal growth; last year about 193,000 tons of lead were so consumed. This represents more than a doubling since '48, when such use took about 84,000 tons. Other outlets: cable covering, as solder, in calking.

"Built for his grandson to walk on!"



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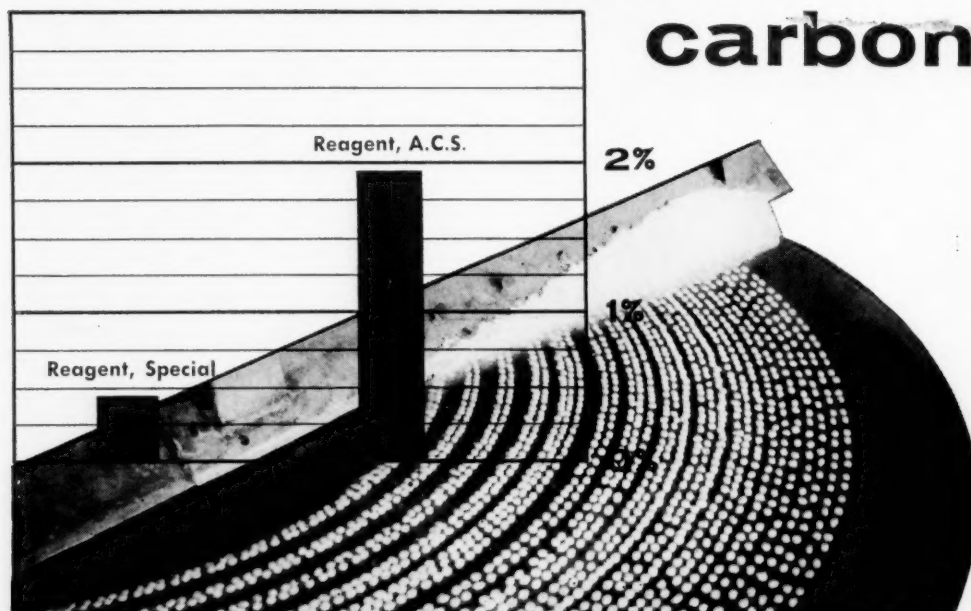
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Here the air is specially filtered and treated. Humidity and temperature are precision controlled. These, plus other process techniques, keep the carbonate content to a minimum and maintain the premium quality for which B&A is known.

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Special "Low Carbonate" with a carbonate limit of 0.5%, and Reagent A.C.S. material with carbonate limit of 2.0%. Both grades run consistently below these maximum established limits. They are available in 1-lb. and 5-lb. screw-cap bottles. The Reagent A.C.S. grade is also available in 10-lb. bottles, 25-lb. drums and larger packages.

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SODIUM HYDROXIDE Pellets, Reagent Special, A.C.S.

"Low Carbonate—0.5% Na ₂ CO ₃ "	
NaOH	M.W. 40.00
Assay (NaOH)	Min. 98.0 %
MAXIMUM LIMIT OF IMPURITIES	
Sodium Carbonate (Na ₂ CO ₃)	0.5 %
Chloride (Cl)	0.005 %
Nitrogen Compounds (as N)	0.001 %
Phosphate (PO ₄)	0.001 %
Sulfate (SO ₄)	0.003 %
Ammonium Hydroxide	
Precipitate	0.020 %
Heavy Metals (as Ag)	0.002 %
Iron (Fe)	0.001 %
Potassium (K)	0.05 %

SODIUM HYDROXIDE Pellets, Reagent, A.C.S.

NaOH		M.W. 40.00
Assay (NaOH)		Min. 97.0 %
MAXIMUM LIMIT OF IMPURITIES		
Sodium Carbonate (Na ₂ CO ₃)	2.0 %	
Chloride (Cl)	0.005 %	
Nitrogen Compounds (as N)	0.001 %	
Phosphate (PO ₄)	0.001 %	
Sulfate (SO ₄)	0.003 %	
Ammonium Hydroxide		
Precipitate	0.020 %	
Heavy Metals (as Ag)	0.002 %	
Iron (Fe)	0.001 %	
Potassium (K)	0.05 %	

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